

=> FILE REG

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STRUCTURE FILE UPDATES: 20 SEP 2002 HIGHEST RN 453593-49-2
DICTIONARY FILE UPDATES: 20 SEP 2002 HIGHEST RN 453593-49-2

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

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Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP
PROPERTIES for more information. See STNote 27, Searching Properties
in the CAS Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> FILE HCAPLUS

FILE 'HCAPLUS' ENTERED AT 17:41:04 ON 21 SEP 2002
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FILE COVERS 1907 - 21 Sep 2002 VOL 137 ISS 13
FILE LAST UPDATED: 20 Sep 2002 (20020920/ED)

This file contains CAS Registry Numbers for easy and accurate
substance identification.

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the CAS Roles thesaurus (/RL field) in this file.

=> D QUE

L102 42597 SEA FILE=REGISTRY ABB=ON (P(L)F(L)H(L)O(L)C)/ELS(L)5-6/ELC.SUB
L103 8142 SEA FILE=REGISTRY ABB=ON L102 NOT 1-100/NR
L104 6126 SEA FILE=REGISTRY ABB=ON L103 NOT 1-10/N
L105 5499 SEA FILE=REGISTRY ABB=ON L104 NOT 1-10/S
L106 4440 SEA FILE=REGISTRY ABB=ON L105 NOT 1-10/M
L108 7028 SEA FILE=HCAPLUS ABB=ON L106

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L109 40 SEA FILE=HCAPLUS ABB=ON L108 AND (LUBRIC? OR GREASE)
 L110 12 SEA FILE=HCAPLUS ABB=ON L108 AND OIL#(3A)ADDITIV?
 L111 40 SEA FILE=HCAPLUS ABB=ON L109 OR L110
 L112 18 SEA FILE=HCAPLUS ABB=ON L111 AND PERFLUORO?
 L114 16 SEA FILE=REGISTRY ABB=ON L106 AND ETHER
 L115 48 SEA FILE=REGISTRY ABB=ON L106 AND PER?
 L116 61 SEA FILE=REGISTRY ABB=ON L114 OR L115
 L117 121 SEA FILE=HCAPLUS ABB=ON L116
 L118 45 SEA FILE=HCAPLUS ABB=ON L117(L) (PREP OR SPN OR IMF)/RL
 L119 19 SEA FILE=HCAPLUS ABB=ON L118 AND PERFLUOR?/IT
 L120 9 SEA FILE=HCAPLUS ABB=ON L118 AND (OIL# OR GREAS? OR LUBRICAT?
 OR ?WEAR? OR ?FRICTION?)
 L124 40 SEA FILE=HCAPLUS ABB=ON L112 OR L119 OR L120

=> D L124 ALL 1-40 HITSTR

L124 ANSWER 1 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 2000:211194 HCAPLUS

DN 132:334535

TI C6, C7, and C8 Perfluoroalkyl-Substituted Phosphinic Acids

AU Singh, Rajendra P.; Shreeve, Jean'ne M.

CS Department of Chemistry, University of Idaho, Moscow, ID, 83844-2343, USA

SO Inorganic Chemistry (2000), 39(8), 1787-1789

CODEN: INOCAJ; ISSN: 0020-1669

PB American Chemical Society

DT Journal

LA English

CC 29-7 (Organometallic and Organometalloidal Compounds)

OS CASREACT 132:334535

AB Reaction of red P with RfI in a 1:2 molar ratio at 230.degree. gave a mixt. of (Rf)2PI and (Rf)PI2 (Rf = C6F13, C7F15, C8F17) in about a 70:30 ratio, resp. These mixts. were sepd. by vacuum distn. (Rf)2PI (Rf = C6F13, C7F15) are yellow liqs. whereas (C8F17)2PI is a yellow solid. Oxidn. of (Rf)2PI with excess NO2 led to (Rf)2P(O)OH (Rf = C6F13, C7F15, C8F17) in >90% isolated yields after aq. hydrolysis of the anhydride intermediates. These highly fluorinated phosphinic acids are white solids with sharp m.ps. and are highly sol. in Me sulfoxide (DMSO) and 1,1,2-trichlorotrifluoroethane. However, soly. in CHCl3 and methylene dichloride is low. These perfluoroalkylphosphinic acids were characterized by IR, NMR (1H, 19F, and 31P), and mass spectra and elemental anal.

ST perfluoroalkylphosphinic acid prepn; fluoroalkylphosphinic acid prepn; phosphinic acid perfluoroalkane prepn; phosphine iodo perfluoroalkyl prepn nitrogen dioxide oxidn; oxidn nitrogen dioxide iodoperfluoroalkylphosphine

IT 335-58-0, **Perfluoroheptyl** iodide 355-43-1, **Perfluorohexyl** iodide 507-63-1, **Perfluorooctyl** iodide 10102-44-0, Nitrogen dioxide, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(prepn. of **perfluoroalkylphosphinic** acids)

IT 39823-45-5P, Bis(**perfluorohexyl**)iodophosphine 39823-48-8P

268555-70-0P, Bis(**perfluoroheptyl**)iodophosphine

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(prepn. of **perfluoroalkylphosphinic** acids)

IT 40143-77-9P 40143-79-1P 103249-32-7P, Ethyl bis(**perfluorohexyl**)phosphinate 158986-67-5P, Bis(**perfluoroheptyl**)phosphinic acid 268555-74-4P, Ethyl bis(**perfluoroheptyl**)phosphinate 268555-76-6P, Ethyl bis(**perfluorooctyl**)phosphinate

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of perfluoroalkylphosphinic acids)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

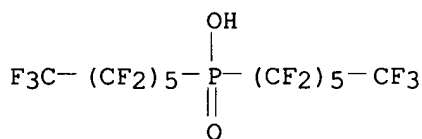
- (1) Ang, H; Aust J Chem 1972, V25, P493 HCAPLUS
- (2) Bennett, F; J Chem Soc 1953, P1565 HCAPLUS
- (3) Brecht, H; DE 2110767 1972 HCAPLUS
- (4) Brecht, H; DE 2110769 1972 HCAPLUS
- (5) Burg, A; Acc Chem Res 1969, V2, P353 HCAPLUS
- (6) Christian, H; DE 2233941 1994 HCAPLUS
- (7) Cowley, A; J Chem Soc, Chem Commun 1970, P523 HCAPLUS
- (8) Dobbie, R; J Chem Soc A 1971, P2894 HCAPLUS
- (9) Kampa, J; Angew Chem, Int Ed Engl 1995, V34, P1241 HCAPLUS
- (10) Mahmood, T; Inorg Chem 1986, V25, P3128 HCAPLUS
- (11) Mori, M; JP 06199061 1994 HCAPLUS

IT 40143-77-9P 40143-79-1P 103249-32-7P, Ethyl
bis(perfluorohexyl)phosphinate 158986-67-5P, Bis(
perfluoroheptyl)phosphinic acid 268555-74-4P, Ethyl bis(
perfluoroheptyl)phosphinate 268555-76-6P, Ethyl bis(
perfluorooctyl)phosphinate

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of perfluoroalkylphosphinic acids)

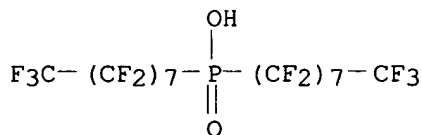
RN 40143-77-9 HCAPLUS

CN Phosphinic acid, bis(tridecafluorohexyl)- (9CI) (CA INDEX NAME)



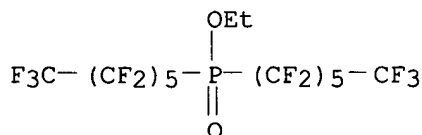
RN 40143-79-1 HCAPLUS

CN Phosphinic acid, bis(heptadecafluorooctyl)- (9CI) (CA INDEX NAME)



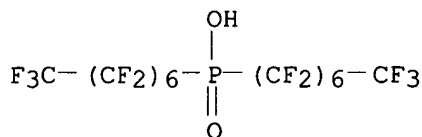
RN 103249-32-7 HCAPLUS

CN Phosphinic acid, bis(tridecafluorohexyl)-, ethyl ester (9CI) (CA INDEX NAME)

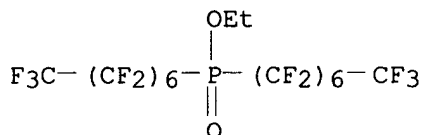


RN 158986-67-5 HCAPLUS

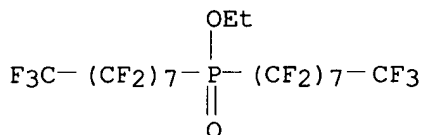
CN Phosphinic acid, bis(pentadecafluoroheptyl)- (9CI) (CA INDEX NAME)



RN 268555-74-4 HCAPLUS
 CN Phosphinic acid, bis(pentadecafluoroheptyl)-, ethyl ester (9CI) (CA INDEX NAME)



RN 268555-76-6 HCAPLUS
 CN Phosphinic acid, bis(heptadecafluorooctyl)-, ethyl ester (9CI) (CA INDEX NAME)



L124 ANSWER 2 OF 40 HCAPLUS COPYRIGHT 2002 ACS.

AN 1998:352328 HCAPLUS

DN 129:89321

TI Magnetic recording medium having **lubricant** film on the surface and recording apparatus using it

IN Koike, Asako; Shoji, Mitsuyoshi; Sasaki, Hiroshi

PA Hitachi, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G11B005-66

ICS C10M105-54; G11B005-72; C10N040-18

CC 77-8 (Magnetic Phenomena)

Section cross-reference(s): 42

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10149528	A2	19980602	JP 1996-309378	19961120
OS	MARPAT 129:89321				

AB The magnetic recording medium has a Langmuir-Blodgett film having groups with lower bond-rotation angle energy barrier than **perfluoroalkyl** chains nearby the surface as the **lubricant** film. Alternatively, the **lubricant** film is made of Rf1X0Rf2T0 (Rf1 = C3-6 **perfluoroalkyl**; Rf2 = C10-25 **perfluoroalkylene**, C10-25 semifuoroalkylene having C.gtoreq.5 **perfluoroalkylene** next to X0; X0 = alkyl inserted by ether linkage, C2-6 alkylene; T0 = carboxyl, aldehyde, sulfonic acid group, phosphoric acid group, OH, acid anhydride).

The recording medium having magnetic head and the recording medium is also claimed. The recording medium shows retention of sliding property in long-term running.

ST magnetic recording medium **lubricant** surface film; Langmuir Blodgett film **lubricant** magnetic recording; low bond rotation angle energy; stable sliding property magnetic recording medium

IT **Lubricants**
Magnetic recording materials
(magnetic recording medium having Langmuir-Blodgett film as surface **lubricant** showing stable sliding property in long-term running)

IT Magnetic memory devices
(magnetic recording medium having Langmuir-Blodgett film as surface **lubricant** showing stable sliding property in long-term running in)

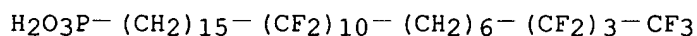
IT Coating materials
(water-resistant; magnetic recording medium having water-repellent Langmuir-Blodgett film as surface **lubricant**)

IT 209185-45-5 209185-46-6 209185-48-8 **209185-49-9**
209185-51-3 209185-52-4 209185-53-5 209185-54-6
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**lubricant**; magnetic recording medium having Langmuir-Blodgett film as surface **lubricant** showing stable sliding property in long-term running)

IT **209185-49-9**
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**lubricant**; magnetic recording medium having Langmuir-Blodgett film as surface **lubricant** showing stable sliding property in long-term running)

RN 209185-49-9 HCAPLUS

CN Phosphonic acid, (16,16,17,17,18,18,19,19,20,20,21,21,22,22,23,23,24,24,25,25,32,32,33,33,34,34,35,35,35-nonacosafuoropentatriacontyl)- (9CI) (CA INDEX NAME)



L124 ANSWER 3 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1997:603403 HCAPLUS

DN 127:220730

TI Facile Synthesis of Fluorinated Phosphonates via Photochemical and Thermal Reactions

AU Nair, Haridasan K.; Burton, Donald J.

CS Department of Chemistry, University of Iowa, Iowa City, IA, 52242, USA

SO Journal of the American Chemical Society (1997), 119(39), 9137-9143
CODEN: JACSAT; ISSN: 0002-7863

PB American Chemical Society

DT Journal

LA English

CC 29-7 (Organometallic and Organometalloidal Compounds)

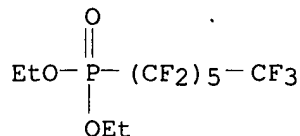
OS CASREACT 127:220730

AB Under UV irradiation (254 nm) at ambient temperature, a degassed mixture of (EtO)2POP(OEt)2 and RfI (Rf = GF3, C2F5, C4F9, C6F13, (CF3)2CF, CF2CF:CF2, ClCF2CF2, BrCF2CF2, C6F5, ClCF2CFC1CF2CF2, I(CF2)3, I(CF2)4, FO2S(CF2)4, FO2S(CF2)2O(CF2)2) affords the fluorinated phosphonite, [RfP(OEt)2]. Oxidation of the phosphonites, [RfP(OEt)2], with Me3COOH gave the corresponding fluorinated phosphonates, (EtO)2P(O)Rf, in 35-80% isolated

yields. Compd. CF₃CCl₂I reacts with (EtO)₂POP(OEt)₂ at room temp. in the absence of UV irradiation to afford [CF₃CCl₂P(OEt)₂] which upon oxidation gave a 48% yield of CF₃CCl₂P(O)(OEt)₂. The reaction of (EtO)₂POP(OEt)₂ and RfI (Rf = ClCF₂CF₂, BrCF₂CF₂, C₂F₅) at 125 degree. in the presence of Me₃COOCMe₃ and subsequent oxidation of the resultant phosphonites afforded phosphonates albeit in lower yields (49-63%) compared to those of the photochem. reaction (58-80%). Compds. (RO)₂P(O)CF₂CF₂I (R = Et, i-Pr) were obtained (42-48%) when a degassed mixture of (RO)₃P and BrCF₂CF₂I was subjected to UV irradiation (254 nm) at ambient temp. via a unique photochem. transformation.

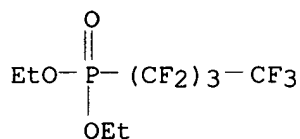
- ST fluorinated phosphonate photochem thermal prepn
- IT 116-17-6, Triisopropyl phosphite 122-52-1, Triethyl phosphite
354-64-3, **Perfluoroethyl iodide** 355-43-1,
Perfluorohexyl iodide 421-70-5, 1-Bromo-2-iodoperfluoroethane
421-78-3, 1-Chloro-2-iodoperfluoroethane 423-39-2,
Perfluorobutyl iodide 431-65-2, **Perfluoroallyl iodide**
628-21-7, 1,4-Diiodobutane 646-60-6, 1,1-Dichloro-1-iodo-2,2,2-
trifluoroethane 677-69-0, 2-Iodoperfluoropropane 678-13-7,
1,2-Dichloro-4-iodoperfluorobutane 678-77-3, **Perfluoroglutaryl**
chloride 827-15-6, **Perfluoroiodobenzene** 2314-97-8,
Trifluoromethyl iodide 21646-99-1, Tetraethyl pyrophosphite 66137-74-4
146829-77-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of fluorinated phosphonates via photochem. and thermal
reactions)
- IT 422-91-3P, 1,3-Diiodoperfluoropropane
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(synthesis of fluorinated phosphonates via photochem. and thermal
reactions)
- IT 2708-87-4P, Diethyl (trifluoromethane)phosphonate 70446-77-4P, Diethyl
(pentafluorophenyl)phosphonate **79668-43-2P**, Diethyl
perfluorohexanephosphonate **81509-47-9P**, Diethyl (
perfluorobutane)phosphonate **81509-48-0P**, Diethyl (
perfluoroisopropyl)phosphonate 119157-77-6P, Diethyl
pentafluoroethanephosphonate **132485-71-3P**, Diethyl
perfluoroallylphosphonate 156628-95-4P, Diethyl
(2-iodotetrafluoroethyl)phosphonate 156628-96-5P, Diethyl
3-iodohexafluoropropanephosphonate 156664-49-2P, Diethyl
2-bromotetrafluoroethanephosphonate 156664-50-5P, Diethyl
2-chlorotetrafluoroethanephosphonate 156664-51-6P, Diisopropyl
(2-iodotetrafluoroethyl)phosphonate 195063-31-1P, Diethyl
4-iodooctafluorobutanephosphonate 195063-32-2P, Diethyl
(3,4-dichloro-1,1,2,2,3,4,4-heptafluorobutyl)phosphonate 195063-33-3P,
Diethyl (2-(2-fluorosulfonyltetrafluoroethoxy)tetrafluoroethyl)phosphonate
195063-34-4P, Diethyl (4-(fluorosulfonyl)**perfluorobutyl**
)phosphonate 195063-35-5P, Diethyl (1,1-dichloro-2,2,2-
trifluoroethyl)phosphonate
RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of fluorinated phosphonates via photochem. and thermal
reactions)
- IT **79668-43-2P**, Diethyl **perfluorohexanephosphonate**
81509-47-9P, Diethyl (**perfluorobutane**)phosphonate
81509-48-0P, Diethyl (**perfluoroisopropyl**)phosphonate
132485-71-3P, Diethyl **perfluoroallylphosphonate**
RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of fluorinated phosphonates via photochem. and thermal
reactions)
- RN 79668-43-2 HCAPLUS
- CN Phosphonic acid, (tridecafluorohexyl)-, diethyl ester (9CI) (CA INDEX

NAME)



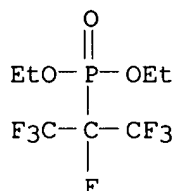
RN 81509-47-9 HCAPLUS

CN Phosphonic acid, (nonafluorobutyl)-, diethyl ester (9CI) (CA INDEX NAME)



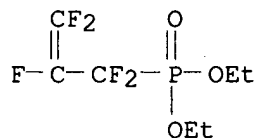
RN 81509-48-0 HCAPLUS

CN Phosphonic acid, [1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]-, diethyl ester (9CI) (CA INDEX NAME)



RN 132485-71-3 HCAPLUS

CN Phosphonic acid, (1,1,2,3,3-pentafluoro-2-propenyl)-, diethyl ester (9CI) (CA INDEX NAME)



L124 ANSWER 4 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1995:663633 HCAPLUS

DN 123:117813

TI Evaluation of anti-wear performance of PFPE-soluble additives under sliding contact in high vacuum

AU Masuko, Masabumi; Takeshita, Nobuhiko; Okabe, Heihachiro

CS Dep. of Chemical Engineering, Tokyo Inst. of Technology, Tokyo, 152, Japan

SO Tribology Transactions (1995), 38(3), 679-85

CODEN: TRTRE4; ISSN: 1040-2004

PB Society of Tribologists and Lubrication Engineers

DT Journal

LA English

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CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

AB The anti-wear performances of **perfluoropolyether** (PFPE)-sol. additives were evaluated under vacuum using a vacuum four-ball tribometer with 440C stainless steel balls as test specimens. PFPE derivs. having the hydroxyl, carboxyl and phosphate groups at the end of the Type D-PFPE mols. were studied. The addn. of either PFPE-sol. carboxylic acid or PFPE-sol. phosphates to the PFPE base oil remarkably reduced steady wear rates in a vacuum environment, whereas the addn. of PFPE-sol. alc. did not. Contrary to the performance in vacuum, an appreciable increase in wear rate was obsd. in the air atm. with all the types of additives used. The effect of moisture is studied in explaining the high wear rates obtained with the additives in the air environment. The mechanism of boundary lubrication with PFPE-sol. additives is discussed.

ST antiwear additive **perfluoropolyether lubricant** vacuum space; hydroxyl carboxyl phosphate deriv **perfluoropolyether** additive

IT **Lubricating oil additives**
(antiwear, for **perfluoropolyethe** lubricant for space applications)

IT **Lubrication**
(boundary, antiwear additives for **perfluoropolyethe lubricant** for space applications)

IT 120895-92-3 **146246-04-0 146246-05-1 146246-06-2** 146349-51-1
RL: MOA (Modifier or additive use); USES (Uses)
(antiwear additives for **perfluoropolyethe lubricant** for space applications)

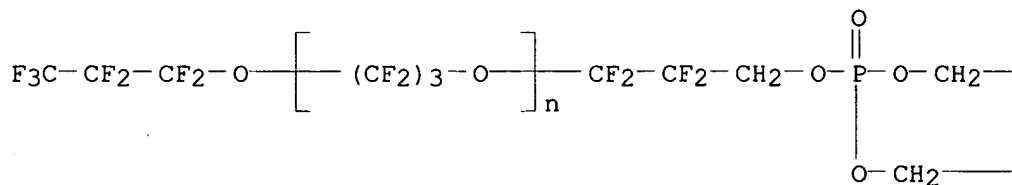
IT 105060-59-1
RL: TEM (Technical or engineered material use); USES (Uses)
(**lubricating oil**; antiwear additives for space applications)

IT **146246-04-0 146246-05-1 146246-06-2**
RL: MOA (Modifier or additive use); USES (Uses)
(antiwear additives for **perfluoropolyethe lubricant** for space applications)

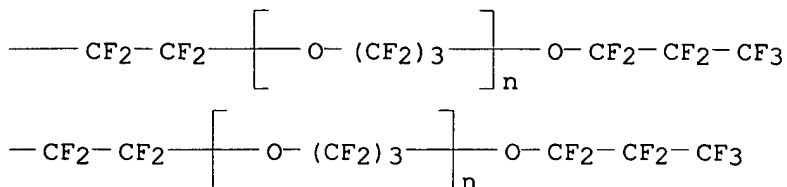
RN 146246-04-0 HCAPLUS

CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.,.alpha.',.alpha.''-[phosphinyldynetris[oxy(1,1,2,2-tetrafluoro-3,1-propanediyl)]]tris[.omega.-(heptafluoropropoxy)- (9CI) (CA INDEX NAME)

PAGE 1-A

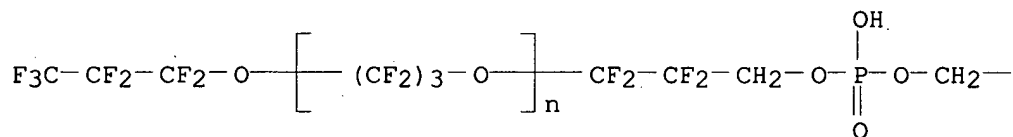


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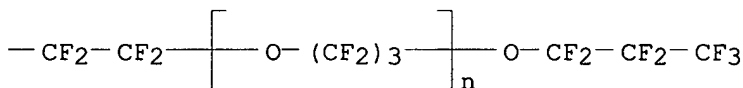


RN 146246-05-1 HCAPLUS
CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.,.alpha.'-[phosphinicobis[oxy(1,1,2,2-tetrafluoro-3,1-propanediyl)]]bis[.omega.-(heptafluoropropoxy)-(9CI) (CA INDEX NAME)]

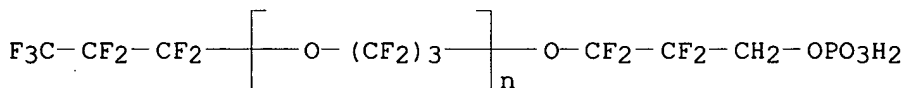
PAGE 1-A



PAGE 1-B



RN 146246-06-2 HCAPLUS
CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.-(heptafluoropropyl)-.omega.-[1,1,2,2-tetrafluoro-2-(phosphonooxy)propoxy]-(9CI) (CA INDEX NAME)



L124 ANSWER 5 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1995:643751 HCAPLUS

DN 123:88061

TI **Lubricants containing perfluoroalkylated phosphate esters and their use in magnetic recording media**

IN Yamada, Tatsuya; Higaki, Juzo

PA Nisshin Fine Chemical Kk, Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C10M105-74

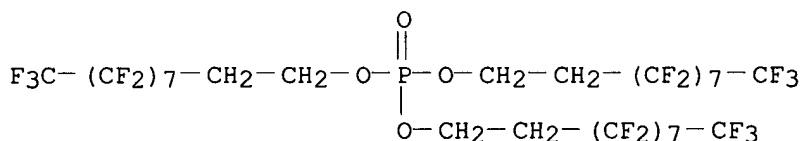
ICS G11B005-71

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CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 77

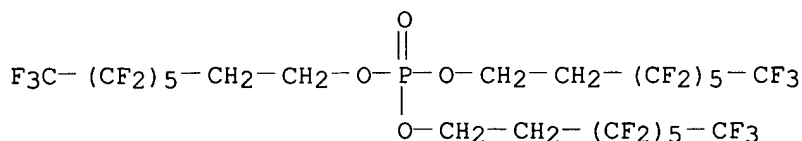
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07097586	A2	19950411	JP 1993-263060	19930928
OS	MARPAT 123:88061				
AB	The lubricants contain (RC _n H _{2n} O) _x PO(OM) _{3-x} [R = linear or branched (mixed) chain C ₃₋₂₁ perfluoro (oxy)alkyl; n = 1-12; x = 1-3; M = alkali metal, (substituted) NH ₄]. The media have surface layers of the above phosphate esters. The lubricants have high resistance to load and wear and are also suitable for precision machines, films, etc.				
ST	perfluoroalkyl phosphate ester lubricant ; magnetic recording media lubricant phosphate				
IT	Lubricants (lubricants contg. perfluoroalkyl -having phosphate esters)				
IT	Recording materials (magnetic, lubricants contg. perfluoroalkyl -having phosphate esters for magnetic recording media)				
IT	7664-38-2D, Phosphoric acid, esters RL: TEM (Technical or engineered material use); USES (Uses) (lubricants contg. perfluoroalkyl -having phosphate esters)				
IT	149790-22-7P 165325-62-2P 165325-63-3P 165325-64-4P 165325-65-5P RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (lubricants contg. perfluoroalkyl -having phosphate esters for magnetic recording media)				
IT	149790-22-7P 165325-62-2P 165325-63-3P 165325-64-4P 165325-65-5P RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (lubricants contg. perfluoroalkyl -having phosphate esters for magnetic recording media)				
RN	149790-22-7 HCAPLUS				
CN	1-Decanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluoro-, phosphate (3:1) (9CI) (CA INDEX NAME)				

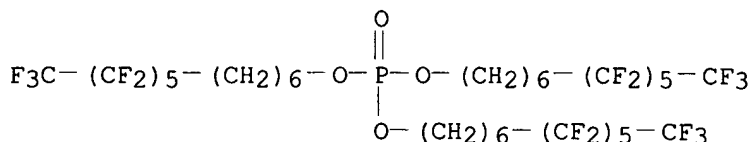


RN 165325-62-2 HCAPLUS

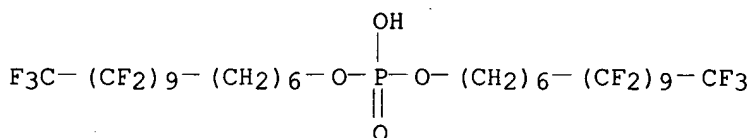
CN 1-Octanol, 3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluoro-, phosphate (3:1) (9CI)
(CA INDEX NAME)



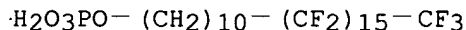
RN 165325-63-3 HCAPLUS
 CN 1-Dodecanol, 7,7,8,8,9,9,10,10,11,11,12,12,12-tridecafluoro-, phosphate
 (3:1) (9CI) (CA INDEX NAME)



RN 165325-64-4 HCAPLUS
 CN 1-Hexadecanol, 7,7,8,8,9,9,10,10,11,11,12,12,13,13,14,14,15,15,16,16,16-heneicosafuoro-, hydrogen phosphate (9CI) (CA INDEX NAME)



RN 165325-65-5 HCAPLUS
 CN 1-Hexacosanol, 11,11,12,12,13,13,14,14,15,15,16,16,17,17,18,18,19,19,20,20,21,21,22,22,23,23,24,24,25,25,26,26,26-tritriacontafuoro-, dihydrogen phosphate (9CI) (CA INDEX NAME)



L124 ANSWER 6 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1995:571430 HCAPLUS

DN 123:88047

TI **Perfluoropolyether**-containing lubricants and magnetic recording media

IN Kondo, Hirofumi

PA Sony Corp, Japan

SO Jpn. Kokai Tokkyo Koho, 24 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C10M169-04

ICS G11B005-71

ICI C10M169-04, C10M105-74, C10M133-06; C10N030-06, C10N040-18

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

Section cross-reference(s): 77

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07062377	A2	19950307	JP 1993-229485	19930823
OS	MARPAT 123:88047				

AB The **lubricants** comprise (RfCH₂O)_nPO(OR₁)_{3-n} (Rf = **perfluoropolyether**; R₁ = C₈₋₁₀ hydrocarbyl; n = 1,2) and/or (RfCH₂O)_nP(OR₁)_{3-n} and the media have the **lubricants** at least on surface of magnetic layers. The **lubricants** give high

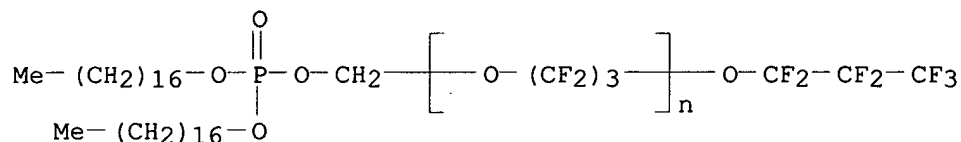
- lubrication at low temp. and durable media and dissolve in solvents free of fluorochlorocarbons.
- ST **perfluoropolyether lubricant** magnetic recording media; phosphate ester **lubricant** recording media; phosphite ester **lubricant** recording media
- IT Amines, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (C.gto req. 10 hydrocarbyl; **lubricants** contg.
perfluoropolyether-phosphate esters and/or phosphite esters and amines for magnetic recording media)
- IT **Lubricants**
 (lubricants contg. **perfluoropolyether**-phosphate esters and/or phosphite esters for magnetic recording media)
- IT Recording materials
 (magnetic, **lubricants** contg. **perfluoropolyether**-phosphate esters and/or phosphite esters for magnetic recording media)
- IT Polyethers, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (**perfluoro**, phosphate esters or phosphite esters; **lubricants** contg. **perfluoropolyether**-phosphate esters and/or phosphite esters for magnetic recording media)
- IT Fluoropolymers
 RL: TEM (Technical or engineered material use); USES (Uses)
 (polyether-, phosphate esters or phosphite esters; **lubricants** contg. **perfluoropolyether**-phosphate esters and/or phosphite esters for magnetic recording media)
- IT Polyoxymethylenes, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (polyoxyalkylene-, fluorine-contg., **lubricants** contg. **perfluoropolyether**-phosphate esters and/or phosphite esters for magnetic recording media)
- IT Fluoropolymers
 RL: TEM (Technical or engineered material use); USES (Uses)
 (polyoxyalkylene-polyoxymethylene-, **lubricants** contg. **perfluoropolyether**-phosphate esters and/or phosphite esters for magnetic recording media)
- IT Polyoxyalkylenes, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (polyoxymethylene-, fluorine-contg., **lubricants** contg. **perfluoropolyether**-phosphate esters and/or phosphite esters for magnetic recording media)
- IT 112-90-3 124-30-1, 1-Octadecanamine 2016-42-4, 1-Tetradecanamine 2016-57-1, 1-Decanamine 2439-55-6 7664-38-2D, Phosphoric acid, **perfluoropolyether**-contg. esters 13598-36-2D, Phosphonic acid, **perfluoropolyether**-contg. esters 66351-61-9, Isooctadecanamine 164980-40-9 164980-41-0 164980-42-1 164980-43-2 164980-44-3 164980-45-4 164980-46-5 164980-47-6 164980-48-7 164980-49-8 164980-50-1 164980-51-2 164980-52-3 165407-25-0 165407-26-1 165407-27-2 165407-28-3 165407-48-7 165407-49-8 165407-50-1 165407-51-2 165467-29-8 165467-32-3 165561-00-2
 RL: TEM (Technical or engineered material use); USES (Uses)
 (lubricants contg. **perfluoropolyether**-phosphate esters and/or phosphite esters for magnetic recording media)
- IT 164980-40-9 164980-41-0 164980-42-1 164980-43-2 164980-44-3 164980-45-4 164980-46-5 164980-47-6 164980-48-7 164980-49-8 164980-50-1 164980-51-2

164980-52-3 165407-25-0 165407-27-2
165407-48-7 165407-49-8 165407-50-1
165407-51-2 165467-32-3 165561-00-2

RL: TEM (Technical or engineered material use); USES (Uses)
(lubricants contg. perfluoropolyether-phosphate
esters and/or phosphite esters for magnetic recording media)

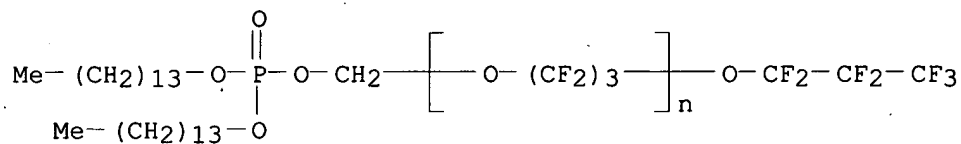
RN 164980-40-9 HCAPLUS

CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.-
[[[bis(heptadecyloxy)phosphinyl]oxy]methyl]-.omega.-(heptafluoropropoxy)-
(9CI) (CA INDEX NAME)



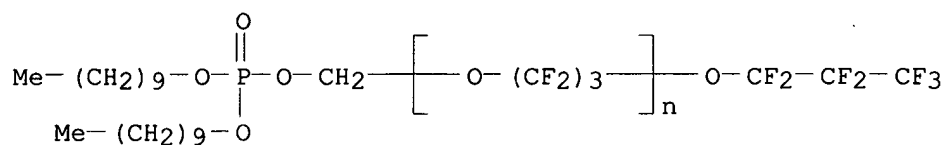
RN 164980-41-0 HCAPLUS

CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.-
[[[bis(tetradecyloxy)phosphinyl]oxy]methyl]-.omega.-(heptafluoropropoxy)-
(9CI) (CA INDEX NAME)



RN 164980-42-1 HCAPLUS

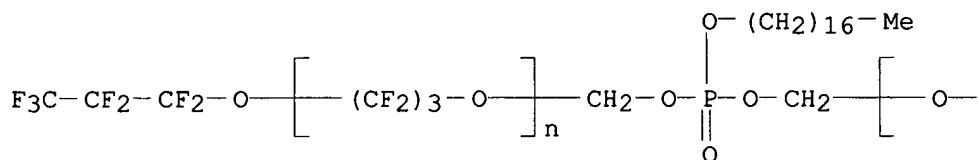
CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.-
[[[bis(decyloxy)phosphinyl]oxy]methyl]-.omega.-(heptafluoropropoxy)- (9CI)
(CA INDEX NAME)



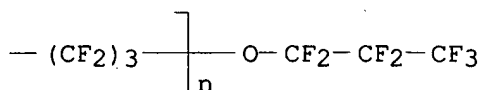
RN 164980-43-2 HCAPLUS

CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.,.alpha.'-
[[(heptadecyloxy)phosphinylidene]bis(oxymethylene)]bis[.omega.-
(heptafluoropropoxy)- (9CI) (CA INDEX NAME)]

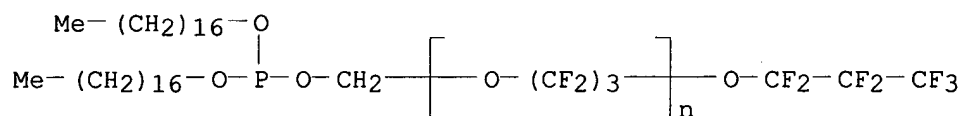
PAGE 1-A



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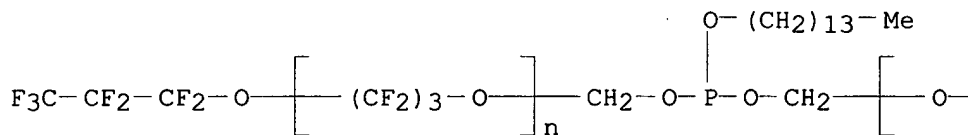


RN 164980-44-3 HCAPLUS
 CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.-
 [[[bis(heptadecyloxy)phosphino]oxy]methyl]-.omega.-(heptafluoropropoxy)-
 (9CI) (CA INDEX NAME)

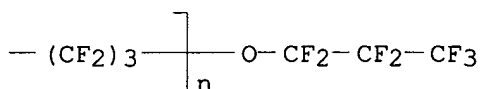


RN 164980-45-4 HCAPLUS
 CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.,.alpha.'-
 [[(tetradecyloxy)phosphinidene]bis(oxymethylene)]bis[.omega.-
 (heptafluoropropoxy)- (9CI) (CA INDEX NAME)]

PAGE 1-A

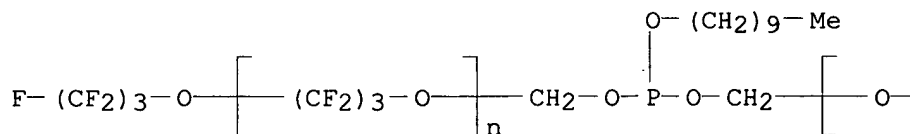


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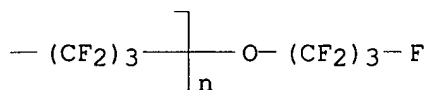


RN 164980-46-5 HCAPLUS
 CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.,.alpha.'-
 [[(decyloxy)phosphinidene]bis(oxymethylene)]bis[.omega.-
 (heptafluoropropoxy)- (9CI) (CA INDEX NAME)]

PAGE 1-A

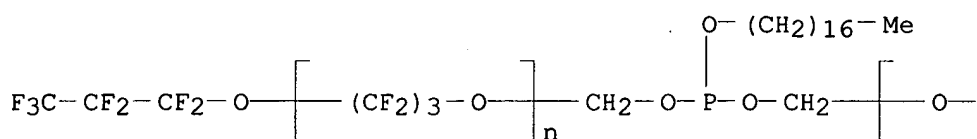


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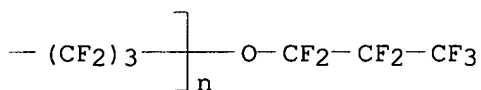


RN 164980-47-6 HCAPLUS
 CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.,.alpha.'-
 [[(heptadecyloxy)phosphinidene]bis(oxymethylene)]bis[.omega.-
 (heptafluoropropoxy)- (9CI) (CA INDEX NAME)]

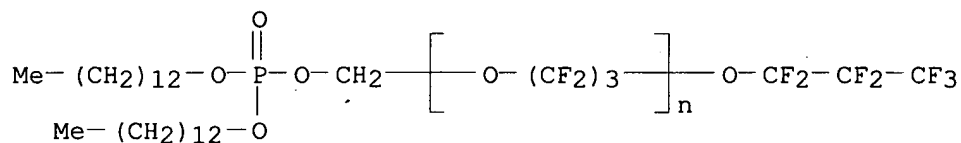
PAGE 1-A



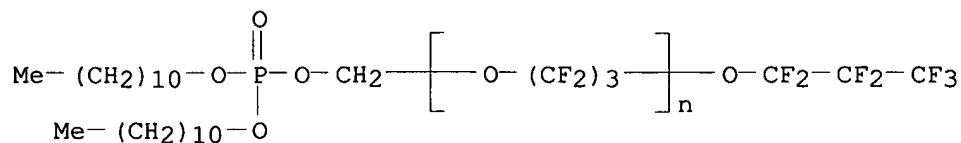
PAGE 1-B



RN 164980-48-7 HCAPLUS
 CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.-
 [[[bis(tridecyloxy)phosphinyl]oxy]methyl]-.omega.-(heptafluoropropoxy)-
 (9CI) (CA INDEX NAME)]

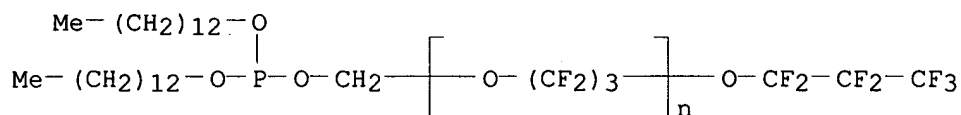


RN 164980-49-8 HCAPLUS
 CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.-
 [[[bis(undecyloxy)phosphinyl]oxy]methyl]-.omega.-(heptafluoropropoxy)-
 (9CI) (CA INDEX NAME)]



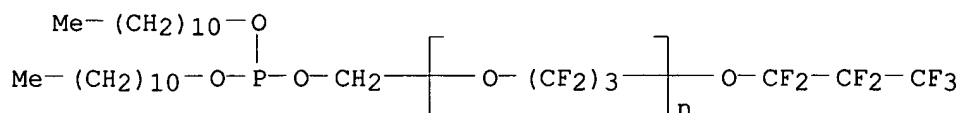
RN 164980-50-1 HCAPLUS
 CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.-

[[[bis(tridecyloxy)phosphino]oxy]methyl]-.omega.-(heptafluoropropoxy)-
(9CI) (CA INDEX NAME)



RN 164980-51-2 HCAPLUS

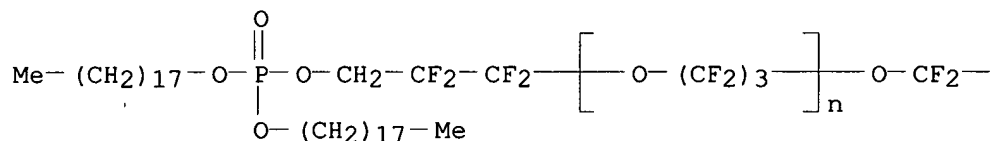
CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.-
[[[bis(undecyloxy)phosphino]oxy]methyl]-.omega.-(heptafluoropropoxy)-
(9CI) (CA INDEX NAME)



RN 164980-52-3 HCAPLUS

CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.-[3-
[[bis(octadecyloxy)phosphinyl]oxy]-1,1,2,2-tetrafluoropropyl]-.omega.-
(heptafluoropropoxy)- (9CI) (CA INDEX NAME)

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—CF₂—CF₃

RN 165407-25-0 HCAPLUS

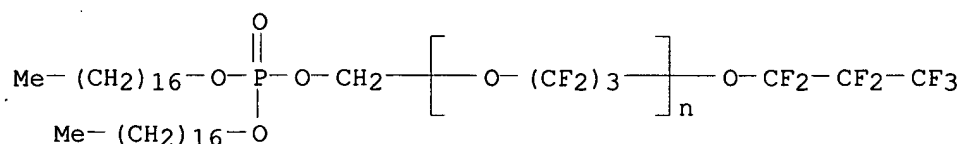
CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.-
[[[bis(heptadecenyloxy)phosphinyl]oxy]methyl]-.omega.-(heptafluoropropoxy)-
(9CI) (CA INDEX NAME)

CM 1

CRN 164980-40-9

CMF (C3 F6 O)_n C38 H72 F7 O5 P

CCI PMS



RN 165407-27-2 HCAPLUS

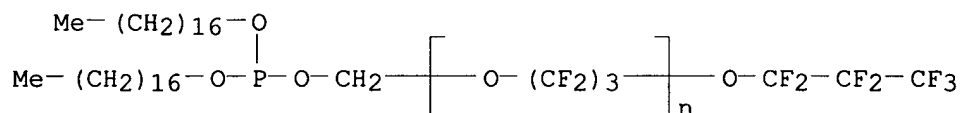
CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.-
[[[bis(heptadecyloxy)phosphino]oxy]methyl]-.omega.-(heptafluoropropoxy)-
(9CI) (CA INDEX NAME)

CM 1

CRN 164980-44-3

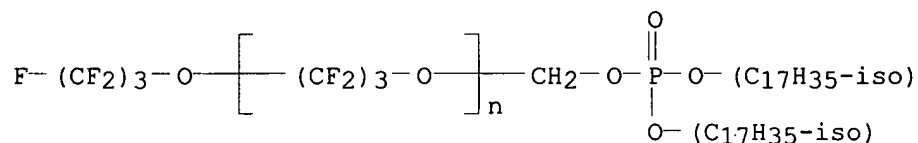
CMF (C3 F6 O)n C38 H72 F7 O4 P

CCI PMS



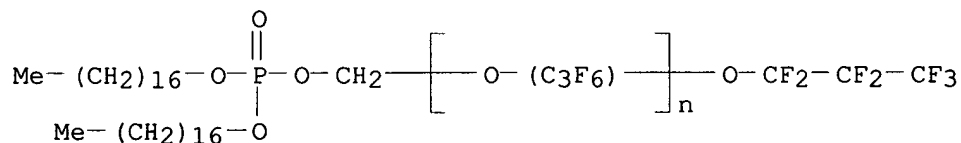
RN 165407-48-7 HCAPLUS

CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.-
[[[bis(isoheptadecyloxy)phosphinyl]oxy]methyl]-.omega.-(heptafluoropropoxy)-
(9CI) (CA INDEX NAME)



RN 165407-49-8 HCAPLUS

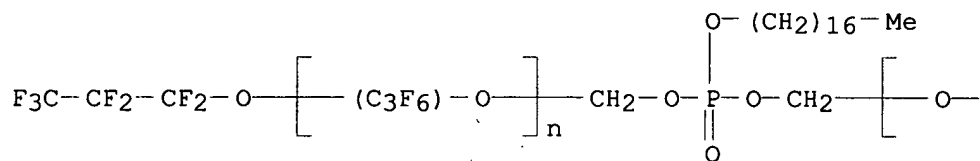
CN Poly[oxy(trifluoro(trifluoromethyl)-1,2-ethanediyl)], .alpha.-
[[[bis(heptadecyloxy)phosphinyl]oxy]methyl]-.omega.-(heptafluoropropoxy)-
(9CI) (CA INDEX NAME)



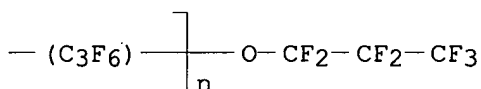
RN 165407-50-1 HCAPLUS

CN Poly[oxy(trifluoro(trifluoromethyl)-1,2-ethanediyl)], .alpha.,.alpha.'-
[[[bis(heptadecyloxy)phosphinylidene]bis(oxymethylene)]bis[.omega.-(heptafluoropropoxy)-
(9CI) (CA INDEX NAME)]

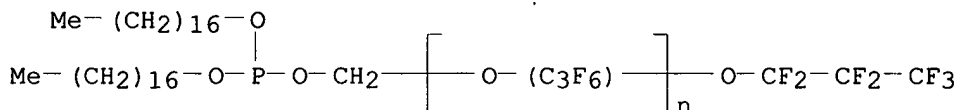
PAGE 1-A



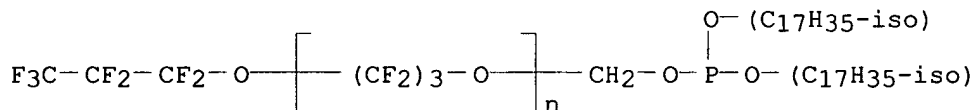
PAGE 1-B



RN 165407-51-2 HCAPLUS
 CN Poly[oxy(trifluoro(trifluoromethyl)-1,2-ethanediyl)], .alpha.-
 [[[bis(heptadecyloxy)phosphino]oxy]methyl]-.omega.-(heptafluoropropoxy)-
 (9CI) (CA INDEX NAME)

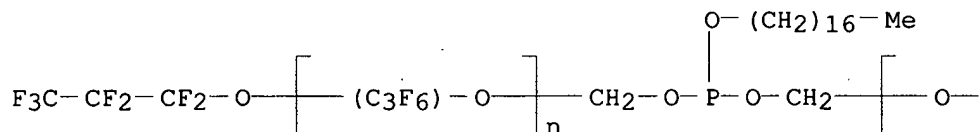


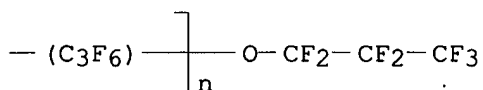
RN 165467-32-3 HCAPLUS
 CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.-
 [[[bis(isoheptadecyloxy)phosphino]oxy]methyl]-.omega.-(heptafluoropropoxy)-
 (9CI) (CA INDEX NAME)



RN 165561-00-2 HCAPLUS
 CN Poly[oxy(trifluoro(trifluoromethyl)-1,2-ethanediyl)], .alpha.,.alpha.'-
 [(heptadecyloxy)phosphinidene]bis(oxymethylene)]bis[.omega.-(heptafluoropropoxy)- (9CI) (CA INDEX NAME)

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L124 ANSWER 7 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1994:168546 HCAPLUS

DN 120:168546

TI **Lubricating** oil for sintered metal bearings

IN Watanabe, Juji; Shinada, Mitsuo

PA Enu Oo Kee Kuryuubaa Kk, Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C10M169-04

ICI C10M169-04, C10M105-04, C10M105-38, C10M147-04, C10M149-02, C10M151-02, C10M153-02; C10N020-02, C10N030-00, C10N040-02

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 05320682	A2	19931203	JP 1992-151265	19920520
	JP 3150424	B2	20010326		

AB The **lubricating** oil is prepd. by adding into base oil an anionic, nonionic, or cationic F-contg. polymeric surfactant, e.g., **perfluorooctylethyl** acrylate-lauryl acrylate-2-acryloyl oxyethylacidphosphate copolymer, **perfluorooctylethyl** acrylate-lauryl acrylate-tetraethylene glycol monomethacrylate copolymer, and **perfluorooctylethyl** acrylate-lauryl acrylate-methacrylic acid hydroxypropyltrimethyl ammonium chloride copolymer.

ST **lubricating** oil fluorine polymer surfactant

IT **Lubricating** oils

(contg. fluorine polymeric surfactant, for sintered metal bearings)

IT Surfactants

(fluorine-contg. polymeric, in **lubricating** oils for sintered metal bearings)

IT 153567-21-6 153567-22-7 153567-23-8

RL: USES (Uses)

(in **lubricating** oils for sintered metal bearings)

IT 153567-21-6

RL: USES (Uses)

(in **lubricating** oils for sintered metal bearings)

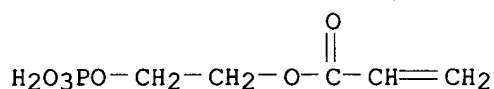
RN 153567-21-6 HCAPLUS

CN 2-Propenoic acid, dodecyl ester, polymer with 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluorodecyl 2-propenoate and 2-(phosphonoxy)ethyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

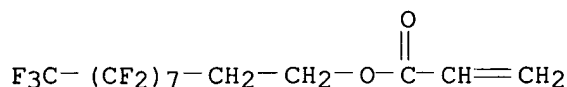
CRN 32120-16-4

CMF C5 H9 O6 P



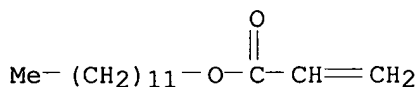
CM 2

CRN 27905-45-9
CMF C13 H7 F17 O2



CM 3

CRN 2156-97-0
CMF C15 H28 O2



L124 ANSWER 8 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1993:431437 HCAPLUS

DN 119:31437

TI Synthesis of novel fluorinated phosphonic acid electrolytes for phosphoric acid fuel cells. Final report, January 1, 1989-June 30, 1991

AU Burton, D. J.

CS Dep. Chem., Univ. Iowa, Iowa City, IA, USA

SO Report (1992), GRI-92/0066; Order No. PB92-164300, 28 pp. Avail.: NTIS From: Gov. Rep. Announce. Index (U. S.) 1992, 92(12), Abstr. No. 232,022

DT Report

LA English

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

AB F-contg. phosphonic acids of general formula $(\text{OH})_2\text{P}(\text{O})(\text{CF}_2)_n\text{P}(\text{O})(\text{OH})_2$ ($n = 1-4, 6$) were prepd. from com. available precursors. Preliminary electrochem. evaluation of $(\text{OH})_2\text{P}(\text{O})\text{CF}_2\text{CF}_2\text{P}(\text{O})(\text{OH})_2$ demonstrated enhanced O soly. of this acid, and the performance of this acid exceeded H_3PO_4 in short-term fuel-cell expts. Methodol. for the prepn. of $(\text{OH})_2\text{P}(\text{O})\text{CF}_2\text{SO}_3\text{H}$ and $\text{CF}_2\text{CF}(\text{CF}_2)_n\text{P}(\text{O})(\text{OH})_2$ ($n = 0, 1$) was also developed.

ST fluoroalkylidenebisphosphonic acid electrolyte fuel cell; phosphoric acid fuel cell electrolyte

IT Fuel-cell electrolytes

(fluoroalkylidenebisphosphonic acids for, prepn. of)

IT 2353-93-7P 118576-73-1P 148333-01-1P 148333-02-2P

RL: PREP (Preparation)

(electrolyte, prepn. of, for phosphoric acid fuel cells)

IT 13598-36-2DP, Phosphonic acid, **perfluoroalkylidenebis** derivs.

RL: PREP (Preparation)

(electrolytes, prepn. of, for phosphoric acid fuel cells)

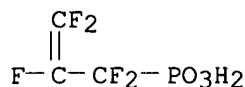
IT 148333-02-2P

RL: PREP (Preparation)

(electrolyte, prepn. of, for phosphoric acid fuel cells)

RN 148333-02-2 HCAPLUS

CN Phosphonic acid, (1,1,2,3,3-pentafluoro-2-propenyl)- (9CI) (CA INDEX NAME)



L124 ANSWER 9 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1993:127907 HCAPLUS

DN 118:127907

TI **Lubrication** performance of **perfluoropolyalkyl** ethers under high vacuum

AU Masuko, Masabumi; Fujinami, Ikutoshi; Okabe, Heihachiro

CS Dep. Chem. Eng., Tokyo Inst. Technol., Tokyo, 152, Japan

SO Wear (1992), 159(2), 249-56

CODEN: WEARAH; ISSN: 0043-1648

DT Journal

LA English

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

AB The tribol. properties of three types of com. available **perfluoropolyalkyl** ethers (PEPEs) were measured under vacuum using a vacuum 4-ball friction app. with 440C stainless steel balls as test specimens. A non-fluorinated polyalkyl ether was also used as a ref., and it showed high friction and wear at atm. pressure, due to local seizure, while PFPEs did not. On the contrary, PFPEs showed high wear under vacuum at high load while maintaining low friction coeffs. Derivs. of PFPE, i.e., carboxylic acid, alc. and phosphate, were also studied. The **lubrication** mechanism of PFPE can be explained by using the analogy of ordinary EP additives, considering their reactivity with the surface.

ST **lubricating** oil vacuum antiwear antifriction property; **perfluoropolyalkyl** ether lubricant space

IT Polyethers, uses

Polyoxyalkylenes, uses

RL: USES (Uses)

(**perfluoro**, **lubricating** oils, antiwear antifriction properties of, in high vacuum)

IT Fluoropolymers

RL: USES (Uses)

(polyether-, **lubricating** oils, antiwear antifriction properties of, in high vacuum)

IT Fluoropolymers

RL: USES (Uses)

(polyoxyalkylene-, **lubricating** oils, antiwear antifriction properties of, in high vacuum)

IT **Lubricating** oils

(vacuum, **perfluoropolyalkyl** ethers, performance of)

IT 25322-69-4D, ethers 60164-51-4 105060-59-1 120895-92-3

146246-04-0 146246-05-1 146246-06-2

146349-51-1

RL: USES (Uses)

(**lubricating** oils, antiwear antifriction properties of, in high vacuum)

IT 146246-04-0 146246-05-1 146246-06-2

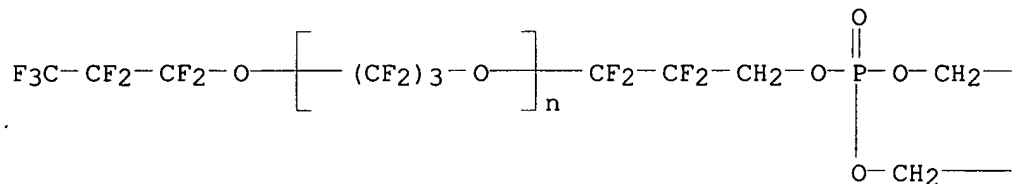
RL: USES (Uses)

(lubricating oils, antiwear antifriction properties of, in high vacuum)

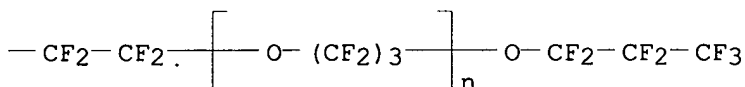
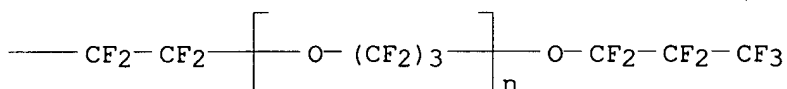
RN 146246-04-0 HCAPLUS

CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.,.alpha.',.alpha.'-[phosphinyldynetris[oxy(1,1,2,2-tetrafluoro-3,1-propanediyl)]]tris[.omega.-(heptafluoropropoxy)-(9CI) (CA INDEX NAME)]

PAGE 1-A



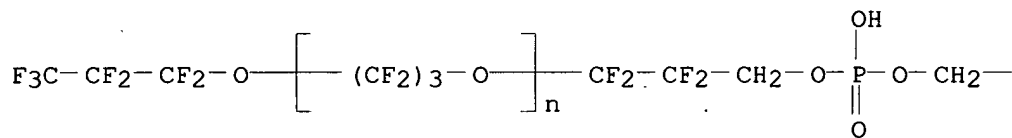
PAGE 1-B



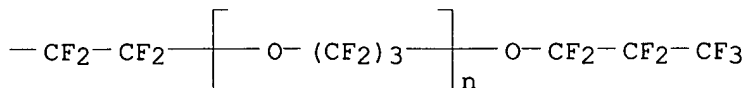
RN 146246-05-1 HCAPLUS

CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.,.alpha.'-[phosphinobis[oxy(1,1,2,2-tetrafluoro-3,1-propanediyl)]]bis[.omega.-(heptafluoropropoxy)-(9CI) (CA INDEX NAME)]

PAGE 1-A

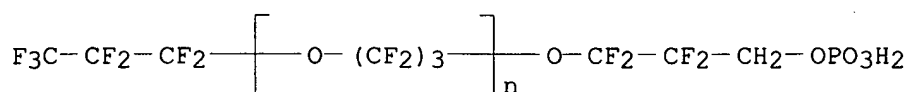


PAGE 1-B



RN 146246-06-2 HCAPLUS

CN Poly[oxy(1,1,2,2,3,3-hexafluoro-1,3-propanediyl)], .alpha.-(heptafluoropropyl)-.omega.-[1,1,2,2-tetrafluoro-2-(phosphonooxy)propoxy]-(9CI) (CA INDEX NAME)]



L124 ANSWER 10 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1991:680119 HCAPLUS

DN 115:280119

TI Perfluorocarbon phosphonic and sulfonic acids containing discretely varying terminal functional groups

AU Rice, Bobbie L.; Guo, Cai Yun; Kirchmeier, Robert L.

CS Dep. Chem., Univ. Idaho, Moscow, ID, 83843, USA

SO Inorg. Chem. (1991), 30(24), 4635-8

CODEN: INOCAJ; ISSN: 0020-1669

DT Journal

LA English

CC 29-7 (Organometallic and Organometalloidal Compounds)

OS CASREACT 115:280119

AB Several new per- and polyfluorocarbon phosphonic and sulfonic acids and their salts (or Et ester) $\text{C}_6\text{F}_5\text{CH}_2\text{P}(\text{O})(\text{OH})_2$, $(\text{CF}_3)_2\text{CFP}(\text{O})(\text{OH})_2$, $\text{CF}_3\text{CH}_2\text{N}(\text{H})\text{P}(\text{O})(\text{OH})_2$, and $(\text{CF}_3)_3\text{CCFHC}_2\text{SO}_3\text{Na}$ were prepd. from the corresponding alkyl iodides or alkenes and tetra-Et pyrophosphite or sodium hydrogen sulfite, resp. $\text{CF}_3\text{CFHC}_2\text{SO}_3\text{H}$ was prepd. and the spectroscopic characterization of this material reported.

ST phosphonic acid perfluorocarbon; sulfonic acid perfluorocarbon; pyrophosphite reaction alkene alkyl iodide

IT Alkenes, reactions

Alkyl halides

RL: RCT (Reactant)

(reaction of, with tetra-Et pyrophosphite or sodium hydrogen sulfite)

IT 3916-24-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and acid hydrolysis of)

IT **81509-48-0P** 125138-11-6P 137174-85-7P

RL: RCT (Reactant); **SPN (Synthetic preparation); PREP (Preparation)**
(prepn. and reaction of, with trimethylsilyl bromide)

IT 357-31-3P 44927-38-0P 124530-58-1P 137174-83-5P 137174-84-6P
RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of)

IT 753-90-2

RL: RCT (Reactant)

(reaction of, with chlorophosphate)

IT 21646-99-1

RL: RCT (Reactant)

(reaction of, with **perfluoroalkyl** iodide)

IT 122-52-1, Triethyl phosphite

RL: RCT (Reactant)

(reaction of, with **perfluorobenzylbromide**)

IT 2857-97-8, Trimethylsilyl bromide

RL: RCT (Reactant)

(reaction of, with **perfluorocarbonphosphonic acid**)

IT 116-15-4 137202-54-1

RL: RCT (Reactant)

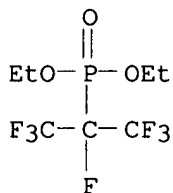
(reaction of, with sodium hydrogen sulfite)

IT 677-69-0

RL: RCT (Reactant)

(reaction of, with tetra-Et pyrophosphite)

IT 1765-40-8
 RL: RCT (Reactant)
 (reaction of, with tri-Et phosphite)
 IT 814-49-3
 RL: RCT (Reactant)
 (reaction of, with trifluoroethyl amide)
 IT 81509-48-0P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation)
 (prepn. and reaction of, with trimethylsilyl bromide)
 RN 81509-48-0 HCAPLUS
 CN Phosphonic acid, [1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]-, diethyl
 ester (9CI) (CA INDEX NAME)



L124 ANSWER 11 OF 40 HCAPLUS COPYRIGHT 2002 ACS
 AN 1991:634832 HCAPLUS
 DN 115:234832
 TI Fluorine-containing surface-treating agents giving tack-free coatings with
 good water and oil repellency
 IN Taguchi, Isamu; Minami, Seiichiro
 PA Showa Denko K. K., Japan
 SO Jpn. Kokai Tokkyo Koho, 6 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C09K003-18
 ICA C08J007-06
 CC 42-10 (Coatings, Inks, and Related Products)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 02258886	A2	19901019	JP 1989-78034	19890331

OS MARPAT 115:234832

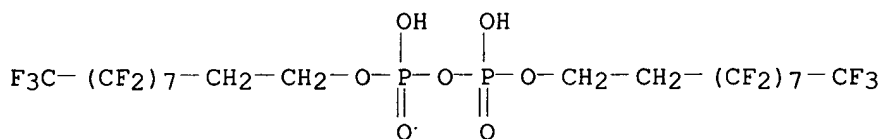
AB The title agents contain $\text{OZr}[\text{OP}(\text{O})(\text{OA})\text{OXRf}]_2$ [I; X = R1, R1NR2CO, R1R2NSO2; R1 = C1-8 alkylene; R2 = H, C1-4 alkyl; Rf = C4-20 perfluoroalkyl; A = H, XRf, P(O)(OH)(OXRf)] and/or $\text{OZr}(\text{OCORf})_2$ (Rf = same as I). Thus, 0.2% 90:10 Freon 113-EtOH soln. of $\text{OZr}(\text{OCOC}_7\text{F}_{15})_2$ (II) was prepd., then SUS 304 and glass plates were dipped in the soln. for 3 min, then dried at 150.degree. for 15 min to give test specimens, which showed contact angle with water 105.0.degree. (SUS 304) and 101.3.degree. (glass), vs. 101.5 and 52.1, resp., using [(HO)1.18P(O)(OC2H4C8F17)1.82] instead of II.

ST fluorophosphate zirconium salt coating; fluorocarboate zirconium salt coating; water repellent fluorocoating zirconium salt; oil repellent fluorocoating zirconium salt; mold release fluorocoating zirconium salt
 IT Polyester fibers, uses and miscellaneous

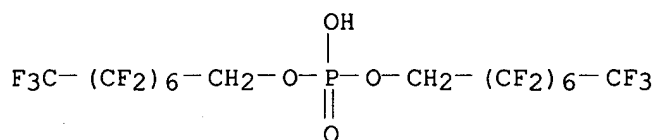
RL: USES (Uses)

(surface-treating agents for, zirconium salts of fluorophosphates or fluorocarbonates, for good water and oil repellency)

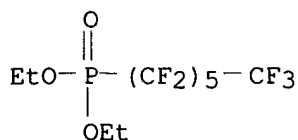
- IT Glass, oxide
RL: USES (Uses)
(surface-treating agents for, zirconium salts of fluorophosphates or fluorocarbonates, for good water repellency)
- IT Parting materials
(release coatings, oil- and water-resistant, zirconium salts of fluorophosphates or fluorocarbonates, for surface treatment of (in)org. materials, giving good **lubricating** properties)
- IT 127824-79-7 127824-80-0
RL: USES (Uses)
(condensation of, with zirconyl carbonate)
- IT 7429-90-5, Aluminum, uses and miscellaneous
RL: USES (Uses)
(mold releases for, zirconium salts of fluorophosphates or fluorocarbonate coatings as)
- IT 34842-61-0P, Zirconyl carbonate
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and reaction of, with fluorine-contg. carboxylic acids or pyrophosphates)
- IT 7699-43-6, Zirconyl chloride
RL: RCT (Reactant)
(reaction of, with sodium carbonate, zirconyl carbonate from)
- IT 335-67-1
RL: RCT (Reactant)
(reaction of, with zirconyl carbonate, fluorocarbonate zirconium salts from)
- IT 497-19-8, Sodium carbonate, reactions
RL: RCT (Reactant)
(reaction of, with zirconyl chloride, zirconyl carbonate from)
- IT 11109-50-5, SUS 304
RL: USES (Uses)
(surface-treating agents for, zirconium salts of fluorophosphates or fluorocarbonates, for good water repellency)
- IT 127824-76-4 127824-77-5 133564-69-9
RL: USES (Uses)
(surface-treating agents, for (in)org. materials, for good oil and water repellency and **lubricating** properties)
- IT 127824-79-7 127824-80-0
RL: USES (Uses)
(condensation of, with zirconyl carbonate)
- RN 127824-79-7 HCAPLUS
- CN Diphosphoric acid, P,P'-bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluorodecyl) ester (9CI) (CA INDEX NAME)



- RN 127824-80-0 HCAPLUS
- CN 1-Octanol, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluoro-, hydrogen phosphate (9CI) (CA INDEX NAME)



L124 ANSWER 12 OF 40 HCAPLUS COPYRIGHT 2002 ACS
 AN 1991:608081 HCAPLUS
 DN 115:208081
 TI A new synthesis of perfluoroalkanephosphonates
 AU Cen, Wenbiao; Shen, Yanchang
 CS Shanghai Inst. Org. Chem., Acad. Sin., Shanghai, 200032, Peop. Rep. China
 SO J. Fluorine Chem. (1991), 52(3), 369-75
 CODEN: JFLCAR; ISSN: 0022-1139
 DT Journal
 LA English
 CC 29-7 (Organometallic and Organometalloidal Compounds)
 OS CASREACT 115:208081
 AB A new method for the synthesis of perfluoroalkanephosphonates, RfP(O)(OC2H5)2 has been developed, involving the facile formation of Rf-P bond by the reaction of perfluoroalkyl Grignard reagents with di-Et chlorophosphate.
 ST phosphonate perfluoroalkane; perfluoroalkyl iodide metalation phosphorylation
 IT Phosphorylation, synthetic
 (of **perfluoroalkyl** iodides by Grignard reagent)
 IT **Perfluoro** compounds
 RL: RCT (Reactant)
 (alkyl iodides, phosphorylation of, via Grignard reagent)
 IT Alkyl iodides
 RL: RCT (Reactant)
 (**perfluoro**, phosphorylation of, via Grignard reagent)
 IT 814-49-3
 RL: RCT (Reactant)
 (phosphorylation by, of **perfluoroalkylmagnesium** bromide, **perfluoroalkanephosphonates** from)
 IT **79668-43-2P** 124213-56-5P 136766-95-5P 136766-96-6P 136766-97-7P
 RL: **SPN (Synthetic preparation); PREP (Preparation)**
 (prepn. of)
 IT 100-58-3, Phenylmagnesium bromide
 RL: RCT (Reactant)
 (reaction of, with **perfluoroalkyliodides**)
 IT 355-43-1 5848-38-4 16486-97-8 16486-98-9 67990-76-5
 RL: RCT (Reactant)
 (sequential reaction of, with Grignard reagent and di-Et chlorophosphate, **perfluoroalkanephosphonates** from)
 IT **79668-43-2P**
 RL: **SPN (Synthetic preparation); PREP (Preparation)**
 (prepn. of)
 RN 79668-43-2 HCAPLUS
 CN Phosphonic acid, (tridecafluorohexyl)-, diethyl ester (9CI) (CA INDEX NAME)



L124 ANSWER 13 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1991:230811 HCAPLUS

DN 114:230811

TI Fluorine-containing surface-treating agents giving tack-free coatings with good water and oil repellency

IN Taguchi, Isamu; Terao, Tatsu; Minami, Seiichiro

PA Showa Denko K. K., Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C09K003-18

ICA C08J007-06

CC 42-10 (Coatings, Inks, and Related Products)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 02258885	A2	19901019	JP 1989-78033	19890331
OS	MARPAT 114:230811				
AB	The title agents contain (RO)mM[OP(O)(OA)OXRf]n [M = Si, Al, Zr; R = C1-8 alkyl, alkoxyalkyl; X = R1, R1NR2CO, NR1R2SO2; R1 = C1-8 alkylene; R2 = H, C1-4 alkylene; Rf = C4-20 perfluoroalkyl ; A = H, XRf, P(O)(OH)(OXRf); n = 1 - v; m .gtoreq.0, m + n = v; v = valency of M]. Thus, 0.2% 90:10 Freon 113-EtOH soln. of (EtO)3Si[OP(O)(OH)0.23(OC2H4C8F17)1.77(I) was prepd., then SUS 304 and glass plates were dipped in the soln. for 3 min, then dried at 150.degree. for 15 min to give test specimens, which showed contact angle with water 110.7.degree. (SUS 304) and 109.2.degree. (glass), vs. 101.5 and 52.1, resp., using [(HO)1.18P(O)(OC2H4C8F17)1.82] instead of I.				
ST	fluorophosphate metal salt coating; mold release fluorophosphate coating; water repellent fluorophosphate salt coating; oil repellent fluorophosphate salt coating				
IT	Polyester fibers, uses and miscellaneous RL: USES (Uses) (fabrics, surface-treating materials for, fluorophosphate metal salt coatings as, for oil and water repellency)				
IT	Glass, oxide RL: USES (Uses) (surface-treating agents for, fluorophosphate coatings as, for good water repellency)				
IT	Parting materials (release coatings, oil- and water-repellent, fluorophosphate metal salts-contg., for surface treatment of (in)org. materials, giving good lubricating properties)				
IT	127824-71-9	127824-72-0	127824-74-2	133927-80-7	
	RL: TEM (Technical or engineered material use); USES (Uses) (coatings, for surface improvement of (in)org. materials, for water and oil repellency and lubricating properties)				
IT	7429-90-5, Aluminum, uses and miscellaneous RL: USES (Uses) (mold releases for, fluorophosphate metal salt coatings as)				

IT 127824-78-6 133380-94-6
 RL: RCT (Reactant)
 (reaction of, with Et silicate, fluorophosphate metal salts from)

IT 127824-79-7
 RL: RCT (Reactant)
 (reaction of, with aluminum isopropoxide, fluoropyrophosphate metal salts from)

IT 11099-06-2, Ethyl silicate
 RL: RCT (Reactant)
 (reaction of, with fluorine-contg. phosphates, fluorophosphate metal salts from)

IT 555-31-7, Aluminum isopropoxide
 RL: RCT (Reactant)
 (reaction of, with fluorine-contg. pyrophosphates, fluoropyrophosphate metal salts from)

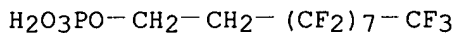
IT 11109-50-5, SUS 304
 RL: USES (Uses)
 (surface-treating agents for, fluorophosphate metal salt coatings as, for good water repellency)

IT 133380-94-6
 RL: RCT (Reactant)
 (reaction of, with Et silicate, fluorophosphate metal salts from)

RN 133380-94-6 HCAPLUS
 CN 1-Decanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluoro-, hydrogen phosphate, mixt. with 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluorodecyl dihydrogen phosphate (9CI) (CA INDEX NAME)

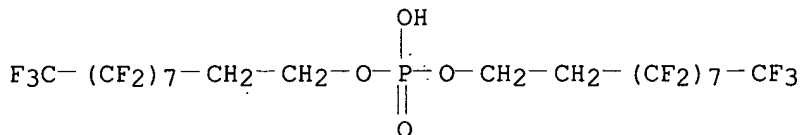
CM 1

CRN 57678-03-2
 CMF C10 H6 F17 O4 P



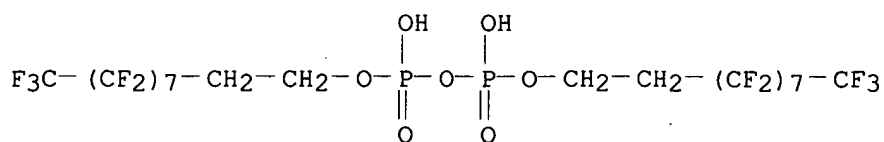
CM 2

CRN 678-41-1
 CMF C20 H9 F34 O4 P



IT 127824-79-7
 RL: RCT (Reactant)
 (reaction of, with aluminum isopropoxide, fluoropyrophosphate metal salts from)

RN 127824-79-7 HCAPLUS
 CN Diphosphoric acid, P,P'-bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluorodecyl) ester (9CI) (CA INDEX NAME)



L124 ANSWER 14 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1990:515560 HCAPLUS

DN 113:115560

TI Preparation of metal **perfluoroalkyl** phosphates and carboxylates as surface-treating agents

IN Taguchi, Isamu; Minami, Seiichirou; Terao, Toru; Akera, Fumio; Shima, Shizuo

PA Showa Denko K. K., Japan

SO Eur. Pat. Appl., 29 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM C07F009-09

CC 29-7 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 40, 42, 51

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 340753	A2	19891108	EP 1989-108020	19890503
	EP 340753	A3	19900502		
	R: BE, DE, FR, GB, IT				
	JP 01279983	A2	19891110	JP 1988-109190	19880506
	JP 01287179	A2	19891117	JP 1988-114537	19880513
PRAI	JP 1988-109190		19880506		
	JP 1988-114537		19880513		

OS MARPAT 113:115560

AB (RO)mM[OP(O)(OA)XR1]n, O:Zr[OP(O)(OA)OXR1]2, and O:Zr(O2CR1)2 [M = Ti, Si, Al, Zr; A = H, XR1, P(O)(OH)OXR1; X = alkylene, alkylenealkyliminocarbonyl, alkylenealkyliminosulfonyl; R = alkyl, alkoxyalkyl; R1 = **perfluoroalkyl**; m + n = valence of M] were prepd. Thus, a mixt. of Ti(OCHMe2)4, (HO)2P(O)OCH2CH2(CF2)7CF3, and HOP(O)[OCH2CH2(CF2)7CF3]2 was heated at 60.degree. for 30 min to give a product having av. compn. (Me2CHO)2Ti[OP(O)(OH)0.18[OCH2CH2(CF2)7CF3]1.82]2 (I). Stainless steel impregnated with I had a contact angle to H2O of 115.7.degree., vs 75.2.degree. for untreated stainless steel.

ST **perfluoroalkyl** phosphate surface treating agent; water resistant coating **perfluoroalkyl** phosphate; oil resistant coating **perfluoroalkyl** phosphate; lubricant **perfluoroalkyl** phosphate; mold releasing agent **perfluoroalkyl** phosphate

IT Lubricants

Water-resistant materials
(metal **perfluoroalkyl** phosphates)

IT Molds (forms)

(release agents for, metal **perfluoroalkyl** phosphates as)

IT Coating materials

(oil-resistant, metal **perfluoroalkyl** phosphates)

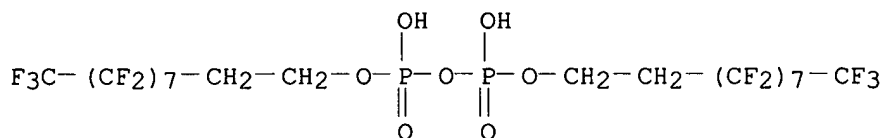
IT Coating materials

(water-resistant, metal **perfluoroalkyl** phosphates as)

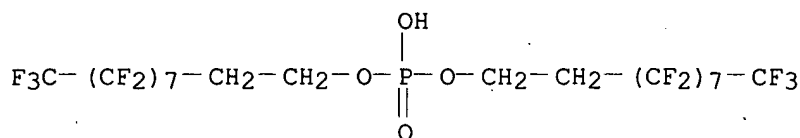
IT 7699-43-6, Zirconyl chloride

RL: PROC (Process)

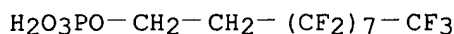
- (conversion of, to zirconyl carbonate)
- IT 678-39-7
RL: RCT (Reactant)
(esterification by, of phosphorus pentoxide)
- IT 1071-76-7, Zirconium tetrabutoxide 34842-61-0, Zirconyl carbonate
RL: RCT (Reactant)
(esterification by, of polyfluoroalkyl phosphate)
- IT 546-68-9 5593-70-4, Titanium tetrabutoxide
RL: RCT (Reactant)
(esterification by, of polyfluoroalkyl phosphate esters)
- IT 555-31-7
RL: RCT (Reactant)
(esterification by, of polyfluoroalkyl pyrophosphate)
- IT 127824-79-7
RL: RCT (Reactant)
(esterification of, with aluminum triisopropoxide)
- IT 1314-56-3, Phosphorus pentoxide, reactions
RL: RCT (Reactant)
(esterification of, with polyfluoro alc.)
- IT 78-10-4, Tetraethylsilicate
RL: RCT (Reactant)
(esterification of, with polyfluoroalkyl phosphate)
- IT 127824-78-6
RL: RCT (Reactant)
(esterification of, with tetra-Et silicate)
- IT 678-41-1 57678-03-2
RL: RCT (Reactant)
(esterification of, with titanium tetraisopropoxide)
- IT 1895-26-7
RL: RCT (Reactant)
(esterification of, with zirconium tetrabutoxide)
- IT 335-67-1 127824-80-0
RL: RCT (Reactant)
(esterification of, with zirconyl carbonate)
- IT 127824-71-9P 127824-72-0P 127824-73-1P 127824-74-2P 127824-75-3P
127824-76-4P 127824-77-5P 127899-58-5P 129073-42-3P 129109-77-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, as surface treating agent)
- IT 127824-79-7
RL: RCT (Reactant)
(esterification of, with aluminum triisopropoxide)
- RN 127824-79-7 HCAPLUS
- CN Diphosphoric acid, P,P'-bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluorodecyl) ester (9CI) (CA INDEX NAME)



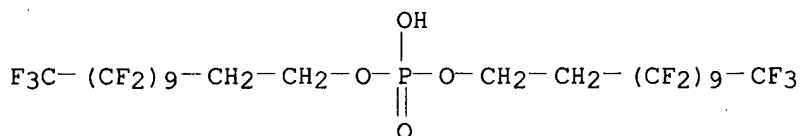
- IT 678-41-1 57678-03-2
RL: RCT (Reactant)
(esterification of, with titanium tetraisopropoxide)
- RN 678-41-1 HCAPLUS
- CN 1-Decanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluoro-, hydrogen phosphate (7CI, 8CI, 9CI) (CA INDEX NAME)



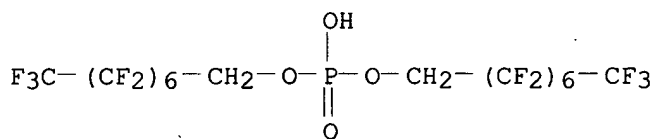
RN 57678-03-2 HCAPLUS
 CN 1-Decanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluoro-,
 dihydrogen phosphate (9CI) (CA INDEX NAME)



IT 1895-26-7
 RL: RCT (Reactant)
 (esterification of, with zirconium tetrabutoxide)
 RN 1895-26-7 HCAPLUS
 CN 1-Dodecanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,12-
 heneicosfluoro-, hydrogen phosphate (7CI, 8CI, 9CI) (CA INDEX NAME)



IT 127824-80-0
 RL: RCT (Reactant)
 (esterification of, with zirconyl carbonate)
 RN 127824-80-0 HCAPLUS
 CN 1-Octanol, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentafluoro-, hydrogen
 phosphate (9CI) (CA INDEX NAME)



L124 ANSWER 15 OF 40 HCAPLUS COPYRIGHT 2002 ACS
 AN 1990:235432 HCAPLUS
 DN 112:235432
 TI Perfluoroalkylphosphonic acids and their derivatives
 AU Kovaleva, T. V.; Martynyuk, E. G.; Semenii, V. Ya.
 CS Inst. Org. Khim., Kiev, USSR
 SO Zh. Obshch. Khim. (1989), 59(11), 2512-15
 CODEN: ZOKHA4; ISSN: 0044-460X
 DT Journal
 LA Russian
 CC 29-7 (Organometallic and Organometalloidal Compounds)
 OS CASREACT 112:235432
 AB Hydrolysis of phosphoranes R3PF2 [R = CF3(CF2)n; n = 1-3] with aq. NaOH

gave 50-69% phosphonic acids $\text{RP}(\text{O})(\text{OH})_2$ (I; same R). Treating I (same R; $n = 2, 3$) with $\text{Et}_2\text{NSiMe}_3$ or with trichlorobenzodioxaphospholine gave 65-70% $\text{RP}(\text{O})(\text{OSiMe}_3)_2$ or 55-60% $\text{RP}(\text{O})\text{Cl}_2$, resp. Reactions of $\text{CF}_3\text{CF}_2\text{CF}_2\text{P}(\text{O})\text{Cl}_2$ with anilines, $\text{Ph}_3\text{P}:\text{NSiMe}_3$, or PhONa gave the corresponding diamides or di-Ph phosphonate, resp.

ST perfluoroalkylphosphonic acid prepn chlorination amidation; phosphorane
perfluoroalkyl hydrolysis

IT Hydrolysis
(of tris(perfluoroalkyl)difluorophosphoranes)

IT 1184-96-9 58734-89-7 127223-44-3
RL: RCT (Reactant)
(hydrolysis of)

IT 127223-38-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and chlorination of)

IT 678-15-9P **52299-24-8P** 103305-01-7P 127223-39-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation)
(prepn. and reactions of)

IT 127223-37-4P 127223-40-9P 127223-41-0P 127223-42-1P 127223-43-2P
127223-45-4P 127223-46-5P 127223-47-6P 127223-48-7P 127223-49-8P
127223-50-1P 127223-51-2P 127246-93-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

IT 996-50-9 2007-97-8 13892-06-3
RL: RCT (Reactant)
(reaction of, with perfluoroalkylphosphonic acids)

IT **52299-24-8P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation)
(prepn. and reactions of)

RN 52299-24-8 HCAPLUS

CN Phosphonic acid, (nonafluorobutyl)- (9CI) (CA INDEX NAME)

$\text{H}_2\text{O}_3\text{P}-(\text{CF}_2)_3-\text{CF}_3$

L124 ANSWER 16 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1990:80807 HCAPLUS

DN 112:80807

TI Fluorine-containing phosphate ester, its preparation and rust preventive composition comprising the same

IN Tohzuka, Takashi; Kataoka, Yoshiaki; Ishikawa, Sueyoshi

PA Daikin Industries, Ltd., Japan

SO Eur. Pat. Appl., 5 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM C08G065-32

ICS C23F011-00

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 338531	A2	19891025	EP 1989-107026	19890419
	EP 338531	A3	19900613		
	EP 338531	B1	19940803		
	R: DE, FR, GB				

	JP 01268696	A2	19891026	JP 1988-97683	19880419
	JP 04060598	B4	19920928		
	US 5132446	A	19920721	US 1990-603006	19901025
PRAI	JP 1988-97683		19880419		
	US 1989-340218		19890419		

AB A F-contg. phosphate ester of the formula (RfCH₂O)_nP(:O)(OH)_{3-n}, where Rf is a **perfluoroalkyl** polyether group and n = 1-3 integer, is used as a rust inhibitor which can be homogeneously mixed with a F-contg. **grease**. An example of the F-contg. phosphate ester is [F(CF₂CF₂CF₂O)_pCF₂CF₂CH₂O]_qPO(OH)_{3-q}, where av. p = 25 and q = 1, 2 and 3 in the molar ratio of 10:70:20.

ST fluorine contg phosphate ester rust inhibitor; **perfluoroalkyl** polyether phosphate **lubricant** antirust; **lubricating grease** antirust **perfluoroalkyl** phosphate ester

IT **Lubricating grease** additives
(rust inhibitors, fluorine-contg. phosphate esters)

IT 9002-84-0, Polyflon TFE 105060-59-1, Demnum S 65 125147-51-5, Demnum L 65
RL: USES (Uses)
(**lubricating grease**, fluorine-contg. phosphate esters as rust inhibitors in)

IT 125220-63-5 125241-31-8 125241-32-9
RL: USES (Uses)
(rust inhibitors contg., for fluorine-contg. **lubricating grease**)

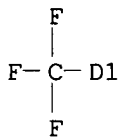
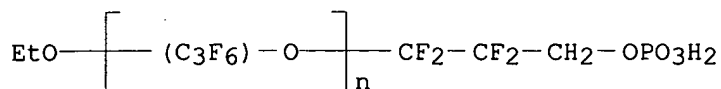
IT 125220-62-4D, reaction products with phosphoric acid and phosphoryl trichloride, hydrolyzed
RL: USES (Uses)
(rust inhibitors, for fluorine-contg. **lubricating grease**)

IT 7664-38-2D, Phosphoric acid, reaction products with fluorine-contg. alc. and phosphoryl trichloride, hydrolyzed 10025-87-3D, Phosphoryl trichloride, reaction products with fluorine-contg. alc. and phosphoric acid, hydrolyzed
RL: USES (Uses)
(rust inhibitors, for fluorine-contg. **lubricating greases**)

IT 125220-63-5 125241-31-8 125241-32-9
RL: USES (Uses)
(rust inhibitors contg., for fluorine-contg. **lubricating grease**)

RN 125220-63-5 HCAPLUS

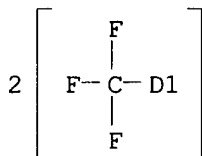
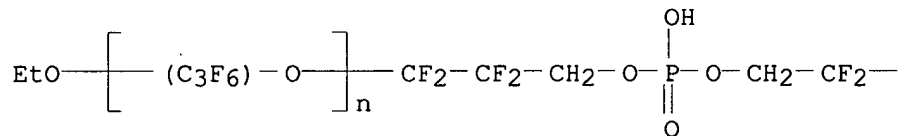
CN Poly[oxy(trifluoro(trifluoromethyl)-1,2-ethanediyl)], .alpha.-[1,1,2,2-tetrafluoro-3-(phosphonooxy)propyl]-.omega.-[tetrafluoro(trifluoromethyl)ethoxy]- (9CI) (CA INDEX NAME)



4 (D1-F)

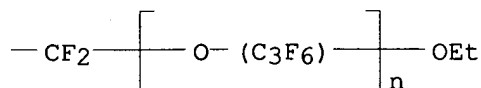
RN 125241-31-8 HCAPLUS
 CN Poly[oxy(trifluoro(trifluoromethyl)-1,2-ethanediyl)], .alpha.,.alpha.'-[phosphinicobis[oxy(1,1,2,2-tetrafluoro-3,1-propanediyl)]]bis[.omega.-[tetrafluoro(trifluoromethyl)ethoxy]- (9CI) (CA INDEX NAME)]

PAGE 1-A



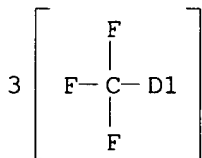
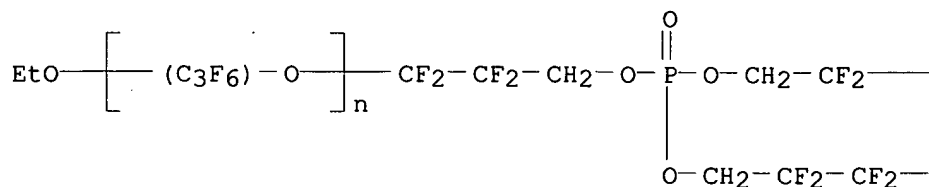
8 (D1-F)

PAGE 1-B



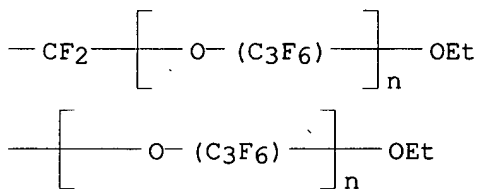
RN 125241-32-9 HCAPLUS
 CN Poly[oxy(trifluoro(trifluoromethyl)-1,2-ethanediyl)], .alpha.,.alpha.',.alpha.'-[phosphinyldynetris[oxy(1,1,2,2-tetrafluoro-3,1-propanediyl)]]tris[.omega.-[tetrafluoro(trifluoromethyl)ethoxy]- (9CI) (CA INDEX NAME)]

PAGE 1-A



12 (D1-F)

PAGE 1-B



L124 ANSWER 17 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1988:75488 HCAPLUS

DN 108:75488

TI (Chloromethyl)(perfluoroalkyl)phosphinate esters

AU Golovanov, A. V.; Maslennikov, I. G.; Gudina, I. V.; Lebedev, V. B.; Lavrent'ev, A. N.

CS Leningr. Tekhnol. Inst., Leningrad, USSR

SO Zh. Obshch. Khim. (1986), 56(11), 2535-9

CODEN: ZOKHA4; ISSN: 0044-460X

DT Journal

LA Russian

CC 29-7 (Organometallic and Organometalloidal Compounds)

OS CASREACT 108:75488

AB Treating R(CH₂Cl)P(O)Cl (I; R = CF₃, CF₃CF₂) with R₁OH (R₁ = Me, Et, Pr, Me₂CH, Bu, Me₂CHCH₂, n-hexyl) gave 66-86% title compds. R(CH₂Cl)P(O)OR₁. Treating I (same R) with MeOH in Et₂O gave 71% [R(CH₂Cl)PO]₂O. Reaction of I (R = CF₃) with CF₂HCF₂CH₂OH or Me(CH₂)₅SH gave 83% CF₃(CH₂Cl)P(O)OCH₂CF₂CF₂H and 52% CF₃(CH₂Cl)P(O)S(CH₂)₅Me, resp.

ST perfluoroalkylphosphinic acid chloride esterification alkanol; phosphinate chloromethyl perfluoroalkyl alkyl ester

IT Esterification
(of (chloromethyl)(**perfluoroalkyl**)phosphinic acid chlorides
with alkanols)

IT 105263-72-7 105263-73-8
RL: RCT (Reactant)
(esterification of, with alkanols)

IT 76-37-9, 1,1,3-Trihydroperfluoro-1-propanol
RL: RCT (Reactant)
(esterification with, of (chloromethyl)(trifluoromethyl)phosphinic acid
chloride)

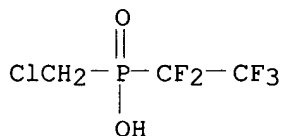
IT 111235-06-4P 111235-07-5P 111727-30-1P 111727-31-2P 111727-32-3P
111727-33-4P 111727-34-5P 111727-35-6P 111749-34-9P 111749-35-0P
112564-14-4P 112564-15-5P 112564-16-6P 112564-17-7P 112564-18-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

IT 112564-19-9DP, (Chloromethyl)(trifluoromethyl)phosphinic acid, esters
112594-77-1DP, (Chloromethyl)(**perfluoroethyl**)phosphinic
acid, esters
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, by alcoholysis of the acid chloride)

IT **112594-77-1DP**, (Chloromethyl)(**perfluoroethyl**)phosphinic
acid, esters
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, by alcoholysis of the acid chloride)

RN 112594-77-1 HCAPLUS

CN Phosphinic acid, (chloromethyl)(pentafluoroethyl)- (9CI) (CA INDEX NAME)



L124 ANSWER 18 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1987:432062 HCAPLUS

DN 107:32062

TI **Lubricants** for magnetic recording media

IN Saito, Osamu; Sumiya, Kenji

PA Hitachi Maxell, Ltd., Japan

SO Ger. Offen., 35 pp.

CODEN: GWXXBX

DT Patent

LA German

IC ICM G11B005-71

ICS C09D005-23; B05D005-12

CC 77-8 (Magnetic Phenomena)

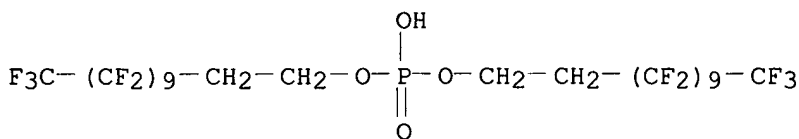
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 3614439	A1	19861106	DE 1986-3614439	19860429
PRAI	JP 1985-94749		19850501		

AB A magnetic recording medium consists of a substrate, a magnetic layer on
.gtoreq.1 side of the substrate, and .gtoreq.1 solid F-contg. compd. on or
in the magnetic layer as **lubricant**. The F-contg. compd. has the
formula CnF_2nXmY (I) or $(\text{CnF}_2\text{nXmO})\text{aP}(\text{O})(\text{OZ})_3\text{-a}$, where X = a divalent group
contg. no F; Y = a hydrophilic group or a monovalent group with a terminal

C:C bond; Z = H or metal; n = an integer .gtoreq.3; m = 0 or 1; and a = 2 or 3. A Co film 0.1-.mu.m thick was vacuum deposited on a polyethylene film 11-.mu.m thick. The Co film was coated with a soln. of I (n = 8; m = 1; X = CH₂; Y = CO₂H) 2 in Cl₃CCF₃ 98 parts so that the amt. of the nonvolatile component was 100 mg/m², and dried. The coated substrate was cut to form a video tape having a friction coeff. of 0.32, service life 875 passes, and image distortion 1.41 and 2.37 .mu.s after 1 and 100 passes, resp. A similar tape with a tetrafluoroethylene telomer as the F-contg. compd. had 0.25, 783, 2.75, and 5.61, resp.

- ST recording medium magnetic **lubricant**; fluorocarbon
lubricant magnetic recording medium; video magnetic tape
lubricant
- IT **Lubricants**
(fluorine-contg. compds., for magnetic recording media)
- IT Recording apparatus
(magnetic, **lubricants** for, fluorine-contg. compds. as)
- IT Recording apparatus
(magnetic tapes, video, **lubricants** for, fluorine-contg. compds. as)
- IT 7439-89-6, Iron, uses and miscellaneous 7440-48-4, Cobalt, uses and miscellaneous 11104-61-3, Cobalt oxide
RL: USES (Uses)
(magnetic recording layers from, fluorine-contg. **lubricants** for)
- IT 1895-26-7 27854-31-5 32130-55-5D, **perfluoro** ethers
of 64264-44-4 85548-36-3 108006-91-3 108026-35-3 108026-36-4
108026-37-5 108027-35-6 108043-90-9 108044-21-9 108049-74-7
RL: PRP (Properties)
(magnetic recording media contg., as **lubricant**)
- IT 95-14-7
RL: PRP (Properties)
(magnetic recording media with fluorine-contg. **lubricants** contg.)
- IT 1895-26-7
RL: PRP (Properties)
(magnetic recording media contg., as **lubricant**)
- RN 1895-26-7 HCAPLUS
- CN 1-Dodecanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,12-heneicosafuoro-, hydrogen phosphate (7CI, 8CI, 9CI) (CA INDEX NAME)



L124 ANSWER 19 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1987:179579 HCAPLUS

DN 106:179579

TI **Perfluoroether lubricants**

IN Tatsu, Harumi

PA Nippon Mectron Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 16 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C10M169-04

KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

ICS C09K003-10; H01F001-12

ICI C10M169-04, C10M107-38, C10M151-04, C10M153-04, C10M155-02, C10M149-12,
C10M147-04, C10M131-12, C10M133-04, C10M133-16, C10M135-10, C10M135-08,
C10M137-12, C10M137-04, C10M125-04, C10M125-10, C10M125-22

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

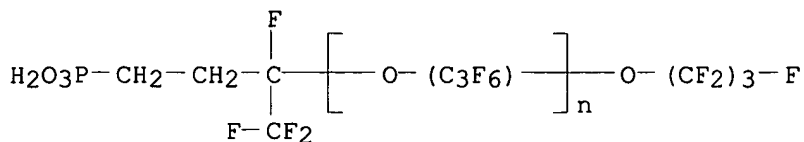
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61254697	A2	19861112	JP 1985-96358	19850507
	JP 06033391	B4	19940502		
AB	<p>Lubricating oils with temp.-chem. resistance, esp. useful for vacuum seals, are prepd. by mixing of (a) a perfluoroether compd. of formula $R[(C_4F_8O)_k(C_3F_6O)_l(C_2F_4O)_m(CF_2O)_n]pR_1$ (R, $R_1 = CF_3$, C_2F_5, or C_3F_7; k, l, m, n, p = 0-100, and $(k + l + m + n) \cdot \text{times. } p > 200$; the segments of C_4F_8O, C_3F_6O, C_2F_4O, and CF_2O can be randomly arranged, but p .noteq. 0), (b) a F-contg. surfactant of formula $R_2[(C_4F_8O)_a(C_3F_6O)_b(C_2F_4O)_c(CF_2O)_d]qR_3Rf_2$ [I; a, b, c, d, q = 0-100, and $(a + b + c + d) \cdot \text{times. } q < 200$; R_3 is a divalent perfluoroalkyl radical; R_2, $Rf_2 = R_{10}$ (R_1 is defined as above), $COOH$, SO_3H, $(PO)(OH)_2$, $(PO)(OR_4)(OH)$ ($R_4 = C.lto req.4$ alkyl), SiY_3 ($Y = OPr$, OEt, OMe, or a halogen), $CONR_5R_6NR_7R_8$ (R_5, R_7, $R_8 = H$ $C.lto req.4$ alkyl, aryl, and aralkyl, $R_6 =$ alkylene), R_9COOH, R_9SO_3H, R_9OSO_3H ($R_9 = C.lto req.4$ alkyl), $R_9O(PO)(OR_{10})(OH)$, $R_9(PO)(OR_{10})(OH)$ ($R_{10} = H$, $C.lto req.4$ alkyl, or aralkyl), $R_9CONR_5R_6NR_7R_8$ (R_5, R_6, R_7, R_8 are defined as above), and $R_9NR_{11}R_{12}$ (R_{11}, $R_{12} = H$, $C.lto req.4$ alkyl, aryl, aralkyl, alc., or polyalkylene glycol), and (c) a metal powder, a metal oxide powder, or a metal sulfide powder. Thus, an Aflunox-400 (a perfluoroether oil) 100, I [$b = 10$, $a = c = d = 0$, $q = 1$; $R_2 = C_3H_7O$, $R_3 =$ perfluoroethylene $Rf_2 = CH_2CH_2(PO)(OH)$] 5, and an Fe_{304} magnetic powder (av. particle diam. .apprx.1 .mu.) 45 g were blended to form a lubricating oil, which was then tested for thermal stability. The resulting lubricating oil was stable at 150.degree. for 168 h, vs. 24 h for the lubricating oil contg. no I.</p>				
ST	lubricating oil perfluoroether vacuum seal; magnetite perfluoroether polymer surfactant lubricant				
IT	Lubricating oils (fluoropolyoxyalkylene perfluoroalkyl ethers, contg. magnetite, for vacuum seals)				
IT	Lubricating oil additives (heat stabilizers, perfluoroalkyl phosphate esters and magnetite, for vacuum seals)				
IT	Perfluoro compounds RL: USES (Uses) (polyethers, lubricating base oils, thermal stabilization of, for vacuum seal)				
IT	108066-18-8 RL: USES (Uses) (lubricating base oils, thermal stabilization of, for vacuum seal)				
IT	1317-61-9, Iron oxide (Fe_{304}), uses and miscellaneous RL: USES (Uses) (magnetic powder, thermal stabilizer, contg. perfluoroalkyl phosphate esters, for vacuum seal lubricating oils)				
IT	108072-64-6 RL: USES (Uses) (thermal stabilizer, contg. magnetite, for lubricating oils, for vacuum seals)				
IT	108072-64-6 RL: USES (Uses) (thermal stabilizer, contg. magnetite, for lubricating oils,				

for vacuum seals)

RN 108072-64-6 HCAPLUS

CN Poly[oxy(trifluoro(trifluoromethyl)-1,2-ethanediyl)], .alpha.-[1-fluoro-3-phosphono-1-(trifluoromethyl)propyl]-.omega.-(heptafluoropropoxy)- (9CI)
(CA INDEX NAME)



L124 ANSWER 20 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1986:611567 HCAPLUS

DN 105:211567

TI **Lubricants**

IN Soei, Motoomi; Shimazaki, Shuhei; Shinjo, Masayoshi

PA Daikin Industries, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C10M111-04

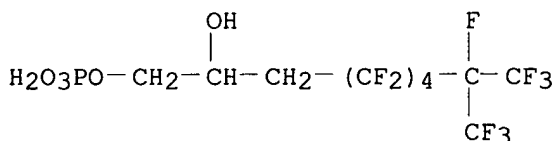
ICI C10M111-04, C10M105-74, C10M107-50, C10N040-18, C10N040-00, C10N030-00, C10N050-08

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

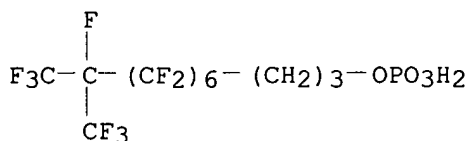
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61120898	A2	19860607	JP 1984-241453	19841115
AB	Lubricant coatings with low friction coeff. comprise (1) C3-20 perfluoroalkyl or perfluoroalkenyl group-contg. phosphates or phosphonates, or their salts, and (2) silicone oil or varnish. A mixt. of 20 parts 10% soln. of (CF3)2CF(CF2CF2)2CH2CH(OH)CH2OP(O)(OH)2 in C2F3Cl3 (I), 10 parts 10% SH200 in PhMe, and 70 parts I was applied on a polyester film and heated 2 min at 90.degree. to form a coating with no tackiness and kinetic friction coeff. 0.045, vs. a tacky surface and 0.200 friction coeff., for a mixt. contg. no SH200.				
ST	lubricant perfluoroalkyl phosphate silicone; phosphonate perfluoroalkyl lubricant silicone; perfluoroalkenyl phosphate lubricant silicone; coating lubricant perfluoroalkyl phosphate silicone				
IT	Lubricants				
	(coatings, silicone-based, contg. perfluoroalkyl or perfluoroalkenyl phosphates and phosphonates)				
IT	Lubricating oils				
	(silicone oil-based, contg. perfluoroalkyl phosphates or phosphonates, for prepn. of antifriction coatings)				
IT	Siloxanes and Silicones, uses and miscellaneous				
	RL: PREP (Preparation)				
	(Me 3,3,3-trifluoropropyl, lubricating oils, contg. perfluoroalkyl phosphates or phosphonates, for prepn. of antifriction coatings)				
IT	Siloxanes and Silicones, uses and miscellaneous				
	RL: PREP (Preparation)				
	(alkyl Me, di-Me, lubricating oils, contg. perfluoroalkyl phosphates or phosphonates, for prepn. of				

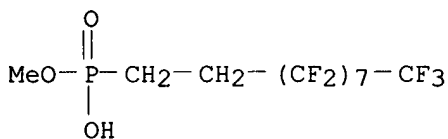
- antifriction coatings)
- IT Siloxanes and Silicones, uses and miscellaneous
RL: PREP (Preparation)
(di-Me, lubricating oils, contg. perfluoroalkyl
phosphates or phosphonates, for prepn. of antifriction coatings)
- IT 7664-38-2D, perfluoroalkyl or perfluoroalkenyl esters
13598-36-2D, perfluoroalkyl or perfluoroalkenyl esters
67969-69-1 105390-37-2 105416-14-6 105416-15-7
105416-16-8
RL: USES (Uses)
(silicone lubricating oils contg., for prepn. of antifriction
coatings)
- IT 105416-14-6 105416-15-7 105416-16-8
RL: USES (Uses)
(silicone lubricating oils contg., for prepn. of antifriction
coatings)
- RN 105416-14-6 HCAPLUS
- CN 1,2-Nonanediol, 4,4,5,5,6,6,7,7,8,9,9,9-dodecafluoro-8-(trifluoromethyl)-,
1-(dihydrogen phosphate) (9CI) (CA INDEX NAME)



- RN 105416-15-7 HCAPLUS
- CN 1-Undecanol, 4,4,5,5,6,6,7,7,8,8,9,9,10,11,11,11-hexadecafluoro-10-
(trifluoromethyl)-, dihydrogen phosphate (9CI) (CA INDEX NAME)

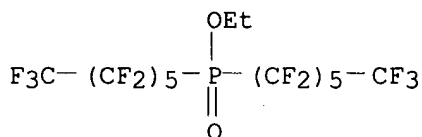


- RN 105416-16-8 HCAPLUS
- CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-
heptadecafluorodecyl)-, monomethyl ester (9CI) (CA INDEX NAME)



- L124 ANSWER 21 OF 40 HCAPLUS COPYRIGHT 2002 ACS
- AN 1986:442270 HCAPLUS
- DN 105:42270
- TI Reactivity of perfluoroalkyl iodides (RFI) and 1-(perfluoroalkyl)-2-
iodoethanes (RFC2H4I) in presence of a zinc-copper couple in alkyl
phosphate solvents
- AU Benefice-Malouet, Sylvie; Blancou, Hubert; Commeyras, Auguste

CS Lab. Chim. Org., Univ. Sci. Tech. Languedoc, Montpellier, 34060, Fr.
 SO J. Fluorine Chem. (1985), 30(2), 171-87
 CODEN: JFLCAR; ISSN: 0022-1139
 DT Journal
 LA French
 CC 23-7 (Aliphatic Compounds)
 OS CASREACT 105:42270
 AB In the title reaction, RFI and RFC2H4I react via an organometallic route to give RFZnI and RFC2H4ZnI, which, under certain conditions, react with alkyl phosphates to give phosphoro-fluorinated mols. (phosphinates, phosphine oxides, phosphines).
 ST perfluoroalkyl iodide reaction zinc copper; perfluoroalkylzinc iodide prepn reaction phosphate; phosphate reaction perfluoroalkylzinc iodide
 IT 103249-31-6P 103249-32-7P 103249-33-8P 103249-34-9P
 103249-35-0P 103249-36-1P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and pyrolysis of)
 IT 115-25-3P 355-37-3P 58431-34-8P 58431-36-0P 103249-37-2P
 103249-38-3P 103249-39-4P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)
 IT 87489-49-4
 RL: RCT (Reactant)
 (reaction of, with Me phosphate)
 IT 2043-53-0 2043-55-2 2043-57-4
 RL: RCT (Reactant)
 (reaction of, with alkyl phosphate in presence of zinc-copper couple)
 IT 355-43-1 423-39-2
 RL: RCT (Reactant)
 (reaction of, with alkyl phosphates in presence of zinc-copper couple)
 IT 78-40-0 126-73-8, reactions 512-56-1
 RL: RCT (Reactant)
 (reaction of, with perfluoroalkylzinc iodides)
 IT 103249-32-7P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and pyrolysis of)
 RN 103249-32-7 HCAPLUS
 CN Phosphinic acid, bis(tridecafluorohexyl)-, ethyl ester (9CI) (CA INDEX NAME)



L124 ANSWER 22 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1986:207355 HCAPLUS

DN 104:207355

TI Reaction of .alpha.,.alpha.,.omega.-trihydroperfluoroalkanols with phosphorus trichloride in the presence of methanol

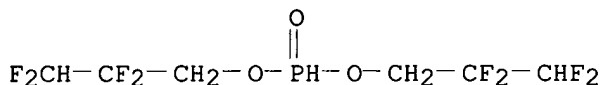
AU Makarov, A. M.; Khaikis, E. M.; Rodygin, A. S.

CS Estestv. Inst., Perm. Univ., Perm, USSR

SO Zh. Obshch. Khim. (1985), 55(7), 1485-7.

CODEN: ZOKHA4; ISSN: 0044-460X

DT Journal
 LA Russian
 CC 29-7 (Organometallic and Organometalloidal Compounds)
 OS CASREACT 104:207355
 AB $[H(CF_2)_nCH_2O]_2POH$ ($n = 2, 4, 6$) were prepd. in 34-84% yields by treating $H(CF_2)_nCH_2OH$ with PCl_3 in MeOH at 0.degree.. Some (8-15%) $H(CF_2)_nCH_2OP(OMe)OH$ were also formed.
 ST perfluoroalkyl phosphite; fluoroalkanol phosphorus trichloride reaction
 IT 65611-25-8P 79339-01-8P 102335-26-2P 102335-27-3P
 102335-28-4P 102335-29-5P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)
 IT 7719-12-2
 RL: RCT (Reactant)
 (reaction of, with perfluoroalkanols)
 IT 76-37-9 335-99-9 355-80-6
 RL: RCT (Reactant)
 (reaction of, with phosphorus trichloride)
 IT 65611-25-8P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)
 RN 65611-25-8 HCAPLUS
 CN Phosphonic acid, bis(2,2,3,3-tetrafluoropropyl) ester (9CI) (CA INDEX NAME)

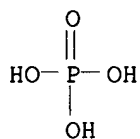


L124 ANSWER 23 OF 40 HCAPLUS COPYRIGHT 2002 ACS

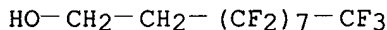
AN 1985:616872 HCAPLUS
 DN 103:216872
 TI Soil-resistant synthetic fibers
 PA Unitika Ltd., Japan
 SO Jpn. Kokai Tokyo Koho, 3 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM D06M013-00
 ICS D06M015-00
 ICA D01F001-10
 CC 40-9 (Textiles)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 60126374	A2	19850705	JP 1983-228924	19831202
AB	Synthetic fibers contg. F compds. are coated with films of F compds. for lasting soil resistance. Thus, freshly-spun nylon 6 fibers contg. C8F17CH2CH2OH phosphate [99332-32-8] were coated with a mineral oil lubricant contg. -2-chloroethyl vinyl ether-2-hydroxyethyl acrylate-2-(perfluorooctyl)ethyl acrylate-vinyl chloride copolymer [92213-60-0], wound, drawn, and woven to a taffeta with good water and oil repellency even after 50 washings.				
ST	waterproofing synthetic fiber; oil repellent synthetic fiber; soilproofing synthetic fiber; fluorocarbon soilproofing fiber; polyamide fiber soilproofing; fluoropolymer soilproofing textile				
IT	Polyamide fibers, uses and miscellaneous				

RL: USES (Uses)
 (soilproofing agents for, fluorocarbon derivs. aso compds.)
 IT Soilproofing
 (agents, fluorocarbon derivs., for synthetic fibers)
 IT 92213-60-0 99289-37-9 99332-32-8
 RL: USES (Uses)
 (soilproofing agent, for synthetic fibers)
 IT 99332-32-8
 RL: USES (Uses)
 (soilproofing agent, for synthetic fibers)
 RN 99332-32-8 HCAPLUS
 CN 1-Decanol, 3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluoro-,
 phosphate (9CI) (CA INDEX NAME)
 CM 1
 CRN 7664-38-2
 CMF H3 O4 P

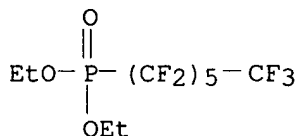


CM 2
 CRN 678-39-7
 CMF C10 H5 F17 O

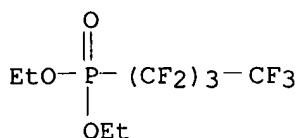


L124 ANSWER 24 OF 40 HCAPLUS COPYRIGHT 2002 ACS
 AN 1983:453873 HCAPLUS
 DN 99:53873
 TI A new synthetic method of perfluoroalkanephosphonates and related compound
 preparation
 AU Kato, Masao; Akiyama, Katsuyuki; Yamabe, Masaaki
 CS Res. Lab., Asahi Glass Co., Ltd., Yokohama, Japan
 SO Asahi Garasu Kenkyu Hokoku (1982), 32(2), 117-28
 CODEN: AGKHAD; ISSN: 0004-4210
 DT Journal
 LA Japanese
 CC 29-7 (Organometallic and Organometalloidal Compounds)
 OS CASREACT 99:53873
 AB A new method for the synthesis of $\text{RP}(\text{O})(\text{OEt})_2$ (I; R = perfluoroalkyl) via
 $\text{RP}(\text{OEt})_2$ was derived involving the facile formation of CF-P bonds by the
 reaction of RI with $[(\text{EtO})_2\text{P}]_2\text{O}$ (II). Thus, $\text{CF}_3(\text{CF}_2)_5\text{I}$ reacted with II in
 $\text{ClCF}_2\text{CFCl}_2$ contg. $(\text{Me}_3\text{C})_2\text{O}_2$ at 120.degree. to give the intermediate
 $\text{CF}_3(\text{CF}_2)_5\text{P}(\text{OEt})_2$, which was oxidized at -10 to -5.degree. with Me_3COOH
 under N to yield 71% I [R = $\text{CF}_3(\text{CF}_2)_5$]. Also prepd. were
 $\text{CF}_3(\text{CF}_2)_3\text{P}(\text{O})(\text{OEt})_2$ and $(\text{CF}_3)_2\text{CFP}(\text{O})(\text{OEt})_2$. New perfluorovinyl ethers
 with phosphonate groups were also synthesized.
 ST perfluoroalkanephosphonate diethyl; fluoroalkyl iodide substitution

tetraethyl pyrophosphite
 IT Substitution reaction
 (of **perfluoroalkyl** iodides with tetra-Et pyrophosphite)
 IT Alkyl iodides
 RL: RCT (Reactant)
 (**perfluoro**, substitution reaction of, with tetra-Et
 pyrophosphite)
 IT 19190-61-5
 RL: RCT (Reactant)
 (chlorination of)
 IT 86556-81-2P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and Hunsdiecker reaction of)
 IT 79683-39-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and dechlorination of)
 IT 86556-83-4P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and esterification of)
 IT 81509-44-6P 81509-45-7P 81509-46-8P 86556-82-3P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and oxidn. of)
 IT 79683-40-2P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and reaction of, with tetra-Et pyrophosphite)
 IT 86556-80-1P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and sapon. of)
 IT 78966-92-4P **79668-43-2P** **81509-47-9P**
 81509-48-0P 86556-84-5P
 RL: **SPN (Synthetic preparation); PREP (Preparation)**
 (prepn. of)
 IT 21646-99-1
 RL: PROC (Process)
 (substitution of, with **perfluoroalkyl** iodides)
 IT 355-43-1 423-39-2 677-69-0
 RL: PROC (Process)
 (substitution of, with tetra-Et pyrophosphite)
 IT **79668-43-2P** **81509-47-9P** **81509-48-0P**
 RL: **SPN (Synthetic preparation); PREP (Preparation)**
 (prepn. of)
 RN 79668-43-2 HCAPLUS
 CN Phosphonic acid, (tridecafluorohexyl)-, diethyl ester (9CI) (CA INDEX
 NAME)

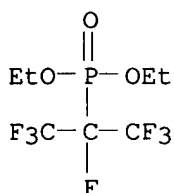


RN 81509-47-9 HCAPLUS
 CN Phosphonic acid, (nonafluorobutyl)-, diethyl ester (9CI) (CA INDEX NAME)



RN 81509-48-0 HCAPLUS

CN Phosphonic acid, [1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]-, diethyl ester (9CI) (CA INDEX NAME)



L124 ANSWER 25 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1983:201182 HCAPLUS

DN 98:201182

TI Machining fluid of water-soluble type using organic surfactants

IN Hasegawa, Masami; Kato, Takashi

PA Nissan Motor Co., Ltd. , Japan

SO Eur. Pat. Appl., 35 pp.

CODEN: EPXXDW

DT Patent

LA English

IC C10M003-04

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

Section cross-reference(s): 61

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	EP 69960	A1	19830119	EP 1982-105992	19820705
	EP 69960	B1	19840801		
	R: DE, FR, GB, IT				
	JP 58008799	A2	19830118	JP 1981-107757	19810710
	US 4430234	A	19840207	US 1982-395838	19820706
PRAI	JP 1981-107757		19810710		

AB A sol. oil for metalworking, having good **lubricity**, load-carrying, and anticorrosion properties and low COD, comprises glycerol monostearate [31566-31-1] 12, sorbitan sesquioleate [8007-43-0] 6, coco fatty acids diethanolamide 8, propylene glycol [57-55-6] 5, EDTA Na salt [7379-28-4] 3, **perfluorooctyl** phosphate [85758-80-1] 2, and H₂O 64 wt. parts. Three similar formulations are also given.

ST metalworking **lubricant** aq ester; polyol ester metalworking **lubricant**; sorbitan ester metalworking **lubricant**; amide aq metalworking **lubricant**

IT Amides, uses and miscellaneous

RL: USES (Uses)

(coco, N-hydroxyethyl derivs., aq. metalworking **lubricants** contg.)

IT **Perfluoro** compounds

RL: USES (Uses)
 (esters, aq. metalworking lubricants contg.)
 IT **Lubricating oils**
 (metalworking, aq., compn. and properties of)
 IT **Lubricating oil additives**
 (metalworking, aq., for polyol esters with fatty acids)
 IT 57-55-6, uses and miscellaneous 120-40-1 1338-39-2 1338-43-8
 7379-28-4 8007-43-0 8045-34-9 25496-72-4 27215-38-9 31566-31-1
85758-80-1 85758-81-2
 RL: USES (Uses)
 (aq. metalworking oils contg.)
 IT **85758-80-1 85758-81-2**
 RL: USES (Uses)
 (aq. metalworking oils contg.)
 RN 85758-80-1 HCAPLUS
 CN 1-Octanol, 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-, dihydrogen
 phosphate (9CI) (CA INDEX NAME)

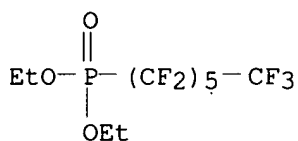
H₂O₃PO- (CF₂)₇-CF₃

RN 85758-81-2 HCAPLUS
 CN 1-Pentanol, 1,1,2,2,3,3,4,4,5,5,5-undecafluoro-, dihydrogen phosphate
 (9CI) (CA INDEX NAME)

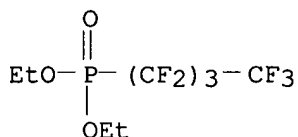
H₂O₃PO- (CF₂)₄-CF₃

L124 ANSWER 26 OF 40 HCAPLUS COPYRIGHT 2002 ACS
 AN 1982:162817 HCAPLUS
 DN 96:162817
 TI A new synthetic route to perfluoroalkylphosphonates involving facile
 formation of the CF-P linkage
 AU Kato, Masao; Yamabe, Masaaki
 CS Res. Dev. Div., Asahi Glass Co., Ltd., Yokohama, 221, Japan
 SO J. Chem. Soc., Chem. Commun. (1981), (22), 1173-4
 CODEN: JCCCAT; ISSN: 0022-4936
 DT Journal
 LA English
 CC 29-7 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 23
 AB The title compds. were prepd. from perfluoroalkyl iodides via their
 corresponding phosphonites. E.g., F₃C(CF₂)₅I underwent substitution
 reaction with [(EtO)₂P]₂O in (Me₃CO)₂/F₂CClCFCl₂ at 120.degree. for 3 h to
 give F₃C(CF₂)₅P(OEt)₂, which was oxidized by Me₃COOH in MeOH under N at
 -10 to -5.degree. to give F₃C(CF₂)₅P(O)(OEt)₂ in 71% overall yield.
 ST fluoroalkylphosphonate; phosphonate perfluoroalkyl; substitution ethyl
 pyrophosphite iodoalkane; oxidn perfluoroalkyl phosphonite; phosphonite
 fluoroalkyl prepn oxidn
 IT **Perfluoro** compounds
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (alkylphosphonates, prepn. of, by substitution reaction of
perfluoroalkyl iodides with tetra-Et pyrophosphite)
 IT Substitution reaction
 (of **perfluoroalkyl** iodide with pyrophosphite,
perfluoroalkylphosphonate by)
 IT 81509-44-6P 81509-45-7P 81509-46-8P

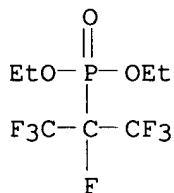
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and oxidn. of)
 IT 79668-43-2P 81509-47-9P 81509-48-0P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)
 IT 21646-99-1
 RL: RCT (Reactant)
 (substitution reaction of, with perfluoroalkyl iodide,
 phosphonite by)
 IT 355-43-1 423-39-2 677-69-0
 RL: RCT (Reactant)
 (substitution reaction of, with tetra-Et pyrophosphite, phosphonite by)
 IT 79668-43-2P 81509-47-9P 81509-48-0P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)
 RN 79668-43-2 HCAPLUS
 CN Phosphonic acid, (tridecafluorohexyl)-, diethyl ester (9CI) (CA INDEX
 NAME)



RN 81509-47-9 HCAPLUS
 CN Phosphonic acid, (nonafluorobutyl)-, diethyl ester (9CI) (CA INDEX NAME)



RN 81509-48-0 HCAPLUS
 CN Phosphonic acid, [1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]-, diethyl
 ester (9CI) (CA INDEX NAME)

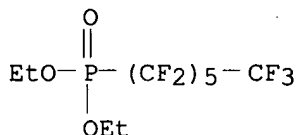


L124 ANSWER 27 OF 40 HCAPLUS COPYRIGHT 2002 ACS
 AN 1981:587418 HCAPLUS
 DN 95:187418
 TI Fluorine-containing phosphorus compounds
 PA Asahi Glass Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 8 pp.
 CODEN: JKXXAF

DT Patent
 LA Japanese
 IC C07F009-48; C07F009-52; C08F230-02; B01D019-04
 CC 29-7 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 46, 51

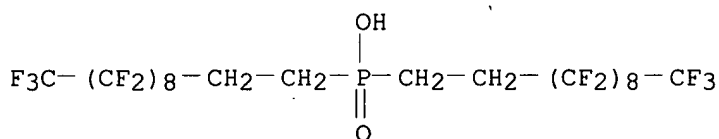
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 56051495	A2	19810509	JP 1979-127352	19791004
AB	A mixt. of F2CClCFC10(CF2)3I 418, di-tert-Bu peroxide 68.5, and tetra-Et pyrophosphite 364 g in Cl2FCCF2Cl was stirred 3 h at 100.degree. and 2 h at 120.degree. to give a reaction mixt. [contg. F2CClCFC10(CF2)3P(OEt)2], which was cooled to -10.degree., 254 g tert-Bu hydroperoxide in MeOH added, and the whole stirred 30 min at 0.degree. to give 174.7 g F2CClCFC10(CF2)3P(O)(OEt)2. Similarly, F2C:CFO(CF2)3P(O)(OMe)2 and n-C6H13P(O)(OEt)2 were prep'd. The products are useful as additives to lubricants and as surfactants.				
ST	lubricant additive phosphonate; surfactant phosphonate; phosphonate fluoroalkane				
IT	Lubricating grease additives Lubricating oil additives Surfactants (phosphonates)				
IT	79683-40-2				
	RL: RCT (Reactant) (phosphorylation of)				
IT	78966-92-4P	79668-43-2P	79683-39-9P		
	RL: SPN (Synthetic preparation); PREP (Preparation) (prepn. of)				
IT	79668-43-2P				
	RL: SPN (Synthetic preparation); PREP (Preparation) (prepn. of)				
RN	79668-43-2	HCAPLUS			
CN	Phosphonic acid, (tridecafluorohexyl)-, diethyl ester (9CI) (CA INDEX NAME)				



L124 ANSWER 28 OF 40 HCAPLUS COPYRIGHT 2002 ACS
 AN 1980:410613 HCAPLUS
 DN 93:10613
 TI **Lubricant** compositions based on zirconium polymers
 IN King, James P.
 PA USA
 SO U.S., 4 pp.
 CODEN: USXXAM
 DT Patent
 LA English
 IC C10M005-24; C10M005-22; C10M005-14; C10M007-46
 NCL 252032700E
 CC 51-7 (Fossil Fuels, Derivatives, and Related Products)
 Section cross-reference(s): 37
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4189387	A	19800219	US 1978-938459	19780831
	JP 57002396	A2	19820107	JP 1980-60012	19800508
PRAI	US 1978-938459		19780831		
AB	Thickened lubricant fluids contain 6-35 wt.% Zr polymer based on phosphinates [Zr4O4(OH)8-y(XPRR1X)y]n or carboxylates [Zr4O4(OH)8-y(O2CR)y]n (I; R and R1 = H, alkyl, aryl, or fluorinated and perfluorinated alkyl and aryl; X = O, S; y = 0.1-7.9; n = 2-30). Thus, a perfluoropolyether fluid (weld point 40 kg; scar diam. 1.09 mm) contg. 30% I (R = C10F21; y = 1; n = 1) gave 500 kg weld point and 0.53 mm scar diam.				
ST	lubricating grease thickener zirconium polymer; perfluoropolyether lubricating grease ; phosphinic zirconium grease thickener				
IT	Polymers, uses and miscellaneous RL: USES (Uses) (zirconium complexes, lubricating grease additives)				
IT	Siloxanes and Silicones, uses and miscellaneous RL: USES (Uses) (fluoro, lubricating greases contg.)				
IT	Polyethers RL: USES (Uses) (perfluoro, lubricating greases contg.)				
IT	Lubricating grease additives (thickeners, zirconium polymeric complexes, for perfluoropolyethers and fluorosiloxanes)				
IT	335-76-2D, zirconium polymeric complexes 1707-03-5D, zirconium polymeric complexes 4271-13-0D, zirconium polymeric complexes 7440-67-7D, phosphinic and carboxylic acid polymeric complexes 73912-44-4D , zirconium polymeric complexes 73912-45-5D, zirconium polymeric complexes RL: USES (Uses) (lubricating grease additives)				
IT	73912-44-4D , zirconium polymeric complexes RL: USES (Uses) (lubricating grease additives)				
RN	73912-44-4 HCAPLUS				
CN	Phosphinic acid, bis(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,11-nonadecafluoroundecyl)-(9CI) (CA INDEX NAME)				

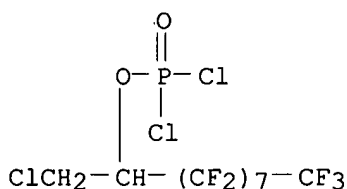


L124 ANSWER 29 OF 40 HCAPLUS COPYRIGHT 2002 ACS
 AN 1978:423767 HCAPLUS
 DN 89:23767
 TI Polyfluoroalkyl phosphorodichloridates for oil-repellent textile finishing
 PA Ciba-Geigy A.-G., Switz.
 SO Jpn. Kokai Tokkyo Koho, 12 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC C09K003-00

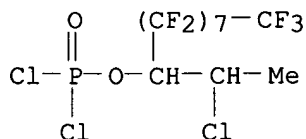
CC 23-8 (Aliphatic Compounds)
Section cross-reference(s): 39

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 52145382	A2	19771203	JP 1976-106828	19760908
AB	Polyfluoroalkyl phosphorodichloridates, useful as oil-repellent finishing agents for textiles, were prepd. by reaction of polyfluoroalkenes with PX ₃ (X = halo) in the presence of O ₂ under anhyd. conditions. Thus, 0.11 mol CF ₃ (CF ₂) ₇ CH:CH ₂ was added to 0.33 mol PCl ₃ at 0-5.degree. followed by introduction of O ₂ and addl. PCl ₃ to give 61% CF ₃ (CF ₂) ₇ CH(CH ₂ Cl)OP(O)Cl ₂ , which on application to cotton and wool showed oil-repellent property of 150 and 120, resp., against a std. max. of 150.				
ST	polyfluoroalkyl phosphorodichloridate oilproofing textile				
IT	Textiles (finishing agents, polyfluoroalkyl phosphorodichloridates)				
IT	Oilproofing (agents, polyfluoroalkyl phosphorodichloridates, for textiles)				
IT	36945-22-9P	36945-23-0P	38471-75-9P	38471-76-0P	
	38471-85-1P	38471-86-2P	38471-87-3P	38471-88-4P	38471-89-5P
	43079-93-2P				
	RL: SPN (Synthetic preparation); PREP (Preparation) (prepn. of)				
IT	21652-58-4	25291-17-2	30389-25-4	67103-04-2	67103-05-3
	RL: RCT (Reactant) (reaction of, with phosphorus trichloride and oxygen)				
IT	36945-22-9P	36945-23-0P			
	RL: SPN (Synthetic preparation); PREP (Preparation) (prepn. of)				
RN	36945-22-9	HCAPLUS			
CN	Phosphorodichloridic acid, 1-(chloromethyl)-2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-heptafluorooctyl ester (9CI) (CA INDEX NAME)				



RN 36945-23-0 HCAPLUS
CN Phosphorodichloridic acid, 1-(1-chloroethyl)-2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-heptafluorooctyl ester (9CI) (CA INDEX NAME)



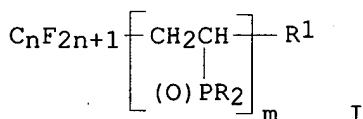
L124 ANSWER 30 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN 1976:560321 HCAPLUS
DN 85:160321

KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

TI 1-(1H,1H-Perfluorooctyl)-1,3-trimethylenediphosphonic tetrachloride
 IN Chance, Leon H.; Moreau, Jerry P.
 PA United States Dept. of Agriculture, USA
 SO U.S., 6 pp. Division of U.S. 3,937,724.
 CODEN: USXXAM
 DT Patent
 LA English
 IC C07F009-38
 NCL 260543000P
 CC 29-7 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 35, 39
 FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3972924	A	19760803	US 1975-630375	19751110
	US 3639144	A	19720201	US 1969-843200	19690718
	US 3910886	A	19751007	US 1971-151507	19710609
	US 3937724	A	19760210	US 1975-561587	19750324
PRAI	US 1969-843200		19690718		
	US 1971-151507		19710609		
	US 1975-561587		19750324		

GI



AB Iodoperfluoroalkylphosphonates I (R = iodo, n = 1-10; m = 1-3; R = OEt) were prep'd. by reacting a perfluoroalkyl iodide with diethyl vinylphosphonate in the presence of a free radical catalyst. Redn. of these iodo phosphonates gave I (R¹ = H) which on chlorination with PCl₅ gave I (R = Cl, R¹ = H). Treating the last with aziridine gave I (R = aziridinyl, R¹ = H). The aziridinylphosphine oxides are used to impart oil and water repellency to cellulosic textiles. The other derivs. are useful as chem. intermediates and as potential foaming agents.

ST iodoperfluoroalkylphosphonate; phosphonate perfluoroalkyl; aziridinylphosphine oxide water repellency; textile water repellency aziridinyl phosphine; oil repellency textile aziridinyl phosphine; foaming agent perfluoroalkylphosphonate; fluoroalkanephosphonate; water repellency textile aziridinyl phosphonate

IT Textiles
 (oil- and waterproofing of, aziridinyl phosphines for)

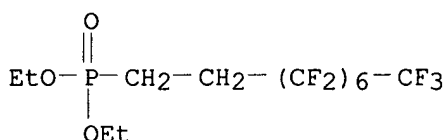
IT 23068-07-7P 23068-08-8P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and chlorination of)

IT 23068-09-9P 23068-10-2P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and reaction with aziridine)

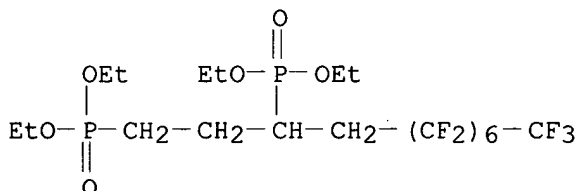
IT 23068-06-6P 23144-30-1P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and redn. of)

IT 23068-11-3P 23068-12-4P 23068-13-5P 23081-40-5P
 RL: SPN (Synthetic preparation); PREP (Preparation)

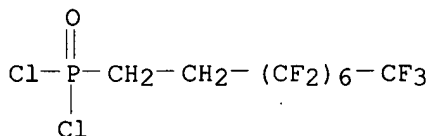
(prepn. of)
 IT 335-58-0
 RL: RCT (Reactant)
 (reaction with diethyl vinylphosphonate)
 IT 682-30-4
 RL: RCT (Reactant)
 (reaction with perfluoroheptyl iodide)
 IT 23068-07-7P 23068-08-8P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation)
 (prepn. and chlorination of)
 RN 23068-07-7 HCAPLUS
 CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluorononyl)-,
 diethyl ester (8CI, 9CI) (CA INDEX NAME)



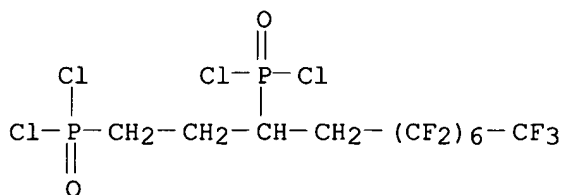
RN 23068-08-8 HCAPLUS
 CN Phosphonic acid, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-
 1,3-propanediyl]bis-, tetraethyl ester (9CI) (CA INDEX NAME)



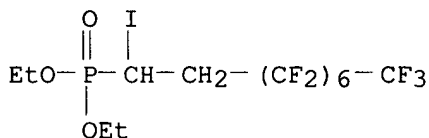
IT 23068-09-9P 23068-10-2P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation)
 (prepn. and reaction with aziridine)
 RN 23068-09-9 HCAPLUS
 CN Phosphonic dichloride, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-
 pentadecafluorononyl)- (8CI, 9CI) (CA INDEX NAME)



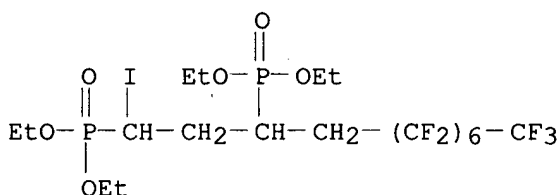
RN 23068-10-2 HCAPLUS
 CN Phosphonic dichloride, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-
 pentadecafluorooctyl)-1,3-propanediyl]bis- (9CI) (CA INDEX NAME)



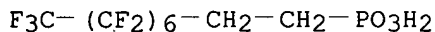
IT 23068-06-6P 23144-30-1P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and redn. of)
 RN 23068-06-6 HCAPLUS
 CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluoro-1-iodononyl)-, diethyl ester (8CI, 9CI) (CA INDEX NAME)



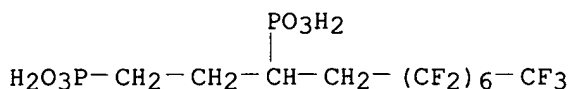
RN 23144-30-1 HCAPLUS
 CN Phosphonic acid, [1-iodo-3-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-1,3-propanediyl]bis-, tetraethyl ester (9CI) (CA INDEX NAME)



IT 23068-11-3P 23068-12-4P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)
 RN 23068-11-3 HCAPLUS
 CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluorononyl)-(8CI, 9CI) (CA INDEX NAME)



RN 23068-12-4 HCAPLUS
 CN Phosphonic acid, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-1,3-propanediyl]bis- (9CI) (CA INDEX NAME)



L124 ANSWER 31 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1976:180390 HCAPLUS

DN 84:180390

TI Organophosphorus compounds containing perfluoroalkyl radicals and their application to cellulosic textiles

IN Chance, Leon H.; Moreau, Jerry P.

PA United States Dept. of Agriculture, USA

SO U.S., 6 pp.

CODEN: USXXAM

DT Patent

LA English

IC C07F

NCL 260502400P

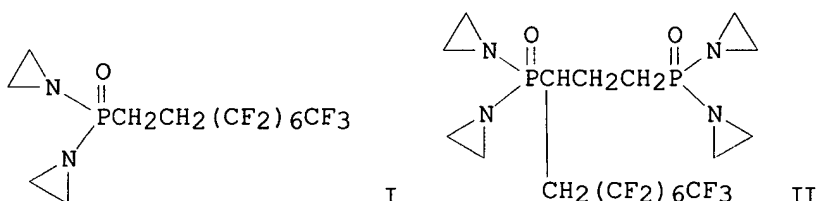
CC 29-7 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 39

FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3937724	A	19760210	US 1975-561587	19750324
	US 3639144	A	19720201	US 1969-843200	19690718
	US 3910886	A	19751007	US 1971-151507	19710609
	US 3972924	A	19760803	US 1975-630375	19751110
PRAI	US 1969-843200		19690718		
	US 1971-151507		19710609		
	US 1975-561587		19750324		

GI



AB The reaction of 0.35 mole $\text{H}_2\text{C}:\text{CHP}(\text{O})(\text{OEt})_2$ with 0.39 mole $\text{F}_3\text{C}(\text{CF}_2)_6\text{I}$ gave 153.1 g $\text{F}_3\text{C}(\text{CF}_2)_6\text{CH}_2\text{CHIP}(\text{O})(\text{OEt})_2$ and $(\text{EtO})_2\text{P}(\text{O})\text{CH}[\text{CH}_2(\text{CF}_2)_6\text{CF}_3]\text{CH}_2\text{CHIP}(\text{O})(\text{OEt})_2$, which were deiiodinated, chlorinated to give the acid chlorides, hydrolyzed, and treated with aziridine to give I and II, resp. I and II imparted oil and water repellency to cellulosic textiles.

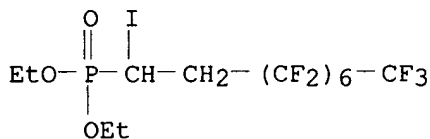
ST cotton textile repellent agent; cellulosic textile repellent agent; oil repellent cotton textile; water repellent cotton textile; polyfluoroalkylphosphine oxide diaziridinyl; aziridinyl phosphine oxide polyfluoroalkyl; fluoroalkyl phosphine oxide diaziridinyl; phosphine oxide aziridinyl fluoroalkyl; addn iodoperfluoroheptane vinylphosphonate; perfluoroheptyl iodide addn vinylphosphonate; phosphonate vinyl addn iodoperfluoroheptane

IT Oils

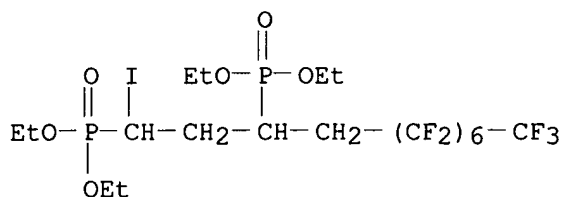
RL: RCT (Reactant)

(-proofing of cellulosic textiles, with polyfluoroalkyldiaziridinylphos

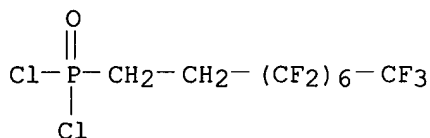
- phine oxides)
- IT Textiles
(cellulosic, oil- and waterproofing of, with
polyfluoroalkyldiaziridinylphosphine oxides)
- IT Waterproofing
(of cotton textiles, with polyfluoroalkyldiaziridinylphosphine oxides)
- IT 23068-06-6P 23144-30-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation)
(prepn. and deiodination of)
- IT 23068-09-9P 59567-18-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation)
(prepn. and hydrolysis of)
- IT 23068-11-3P 23068-12-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation)
(prepn. and reaction with aziridine)
- IT 23068-07-7P 23068-08-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation)
(prepn. and reaction with phosphorus pentachloride)
- IT 23068-13-5P 23081-40-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and use as oil- and waterproofing agents for
cellulosic textiles)
- IT 335-58-0
RL: RCT (Reactant)
(reaction with diethyl vinylphosphonate)
- IT 682-30-4
RL: RCT (Reactant)
(reaction with perfluoroheptyl iodide)
- IT 151-56-4, reactions
RL: RCT (Reactant)
(with perfluoroalkylphosphonic acids)
- IT 23068-06-6P 23144-30-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation)
(prepn. and deiodination of)
- RN 23068-06-6 HCAPLUS
- CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluoro-1-
iodononyl)-, diethyl ester (8CI, 9CI) (CA INDEX NAME)



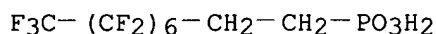
- RN 23144-30-1 HCAPLUS
- CN Phosphonic acid, [1-iodo-3-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-
pentadecafluorooctyl)-1,3-propanediyl]bis-, tetraethyl ester (9CI) (CA
INDEX NAME)



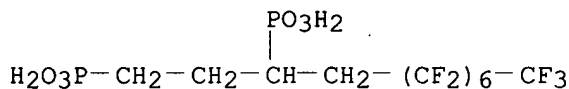
IT 23068-09-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and hydrolysis of)
 RN 23068-09-9 HCAPLUS
 CN Phosphonic dichloride, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluorononyl)- (8CI, 9CI) (CA INDEX NAME)



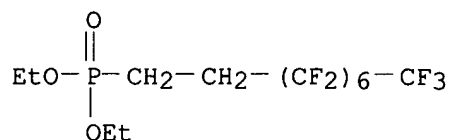
IT 23068-11-3P 23068-12-4P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and reaction with aziridine)
 RN 23068-11-3 HCAPLUS
 CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluorononyl)- (8CI, 9CI) (CA INDEX NAME)



RN 23068-12-4 HCAPLUS
 CN Phosphonic acid, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-1,3-propanediyl]bis- (9CI) (CA INDEX NAME)

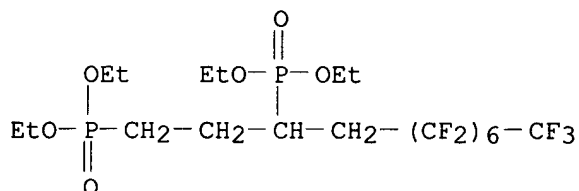


IT 23068-07-7P 23068-08-8P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and reaction with phosphorus pentachloride)
 RN 23068-07-7 HCAPLUS
 CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluorononyl)-, diethyl ester (8CI, 9CI) (CA INDEX NAME)



RN 23068-08-8 HCAPLUS

CN Phosphonic acid, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-1,3-propanediyl]bis-, tetraethyl ester (9CI) (CA INDEX NAME)



L124 ANSWER 32 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1976:59734 HCAPLUS

DN 84:59734

TI Organophosphorus compounds containing perfluoroalkyl radicals and aziridine radicals

IN Chance, Leon H.; Moreau, Jerry P.

PA United States Dept. of Agriculture, USA

SO U.S., 6 pp. Division of U.S. 3,639,144.

CODEN: USXXAM

DT Patent

LA English

IC C07F

NCL 260239000EP

CC 29-7 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 39

FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3910886	A	19751007	US 1971-151507	19710609
	US 3639144	A	19720201	US 1969-843200	19690718
	US 3937724	A	19760210	US 1975-561587	19750324
	US 3972924	A	19760803	US 1975-630375	19751110
PRAI	US 1969-843200		19690718		
	US 1971-151507		19710609		
	US 1975-561587		19750324		
AB	H2C:CHP(O)(OEt)2 and F3C(CF2)6I gave F3C(CF2)6CH2CHIP(O)(OEt)2 and (EtO)2P(O)CH[CH2(CF2)6CF3]CH2CHIP(O)(OEt)2 which were reduced, treated with HCl, hydrolyzed, and treated with aziridine to give 1H,1H,2H,2H-perfluorononylbis(1-aziridiny)phosphine oxide (I) and 1-(1H,1H-perfluorooctyl)-1,3-trimethylenebis[(diaziridino)phosphine oxide] (II). I and II were used as oil and water repellant agents on cellulosic textiles.				
ST	oil repellant aziridinoperfluoroalkylphosphine oxide; water repellant aziridinoperfluoroalkylphosphine oxide; repellant oil water cotton textile; phosphine oxide aziridino perfluoroalkyl; perfluoroalkylphosphine oxide aziridino; addn perfluoroalkyl iodide vinylphosphonate; phosphonate vinyl addn perfluoroalkyl iodide				

IT Oils
 RL: RCT (Reactant)
 (-proofing, of cellulosic textiles, agents for, **perfluoroalkyl**
 (aziridiny)phosphine oxide)

IT Waterproofing
 (of cellulosic textile, agents for, **perfluoroalkyl**
 (aziridiny)phosphine oxides)

IT Textiles
 (oil- and waterproofing agents for cellulosic,
perfluoroalkyl(aziridiny)phosphine oxide)

IT 23068-09-9P 23068-10-2P
 RL: RCT (Reactant); SPN (**Synthetic preparation**); PREP
 (**Preparation**)
 (prepn. and hydrolysis of)

IT 23068-13-5P 23081-40-5P
 RL: SPN (**Synthetic preparation**); PREP (**Preparation**)
 (prepn. and oil and water repellant activity of, on
 cellulosic textiles)

IT 23068-11-3P 23068-12-4P
 RL: RCT (Reactant); SPN (**Synthetic preparation**); PREP
 (**Preparation**)
 (prepn. and reaction with aziridine)

IT 23068-07-7P 23068-08-8P
 RL: RCT (Reactant); SPN (**Synthetic preparation**); PREP
 (**Preparation**)
 (prepn. and reaction with hydrochloric acid)

IT 23068-06-6P 23144-30-1P
 RL: RCT (Reactant); SPN (**Synthetic preparation**); PREP
 (**Preparation**)
 (prepn. and redn. of)

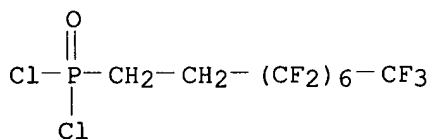
IT 335-58-0
 RL: RCT (Reactant)
 (reaction with diethyl vinylphosphonate)

IT 682-30-4
 RL: RCT (Reactant)
 (reaction with **perfluoroheptyl** iodide).

IT 23068-09-9P 23068-10-2P
 RL: RCT (Reactant); SPN (**Synthetic preparation**); PREP
 (**Preparation**)
 (prepn. and hydrolysis of)

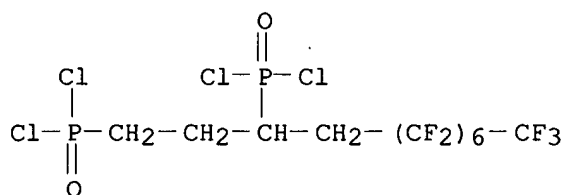
RN 23068-09-9 HCAPLUS

CN Phosphonic dichloride, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-
 pentadecafluorononyl)- (8CI, 9CI) (CA INDEX NAME)



RN 23068-10-2 HCAPLUS

CN Phosphonic dichloride, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-
 pentadecafluorooctyl)-1,3-propanediyl]bis- (9CI) (CA INDEX NAME)



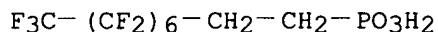
IT 23068-11-3P 23068-12-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation)

(prepn. and reaction with aziridine)

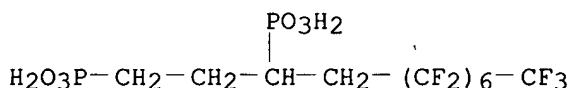
RN 23068-11-3 HCAPLUS

CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluorononyl)-
(8CI, 9CI) (CA INDEX NAME)



RN 23068-12-4 HCAPLUS

CN Phosphonic acid, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-
1,3-propanediyl]bis- (9CI) (CA INDEX NAME)



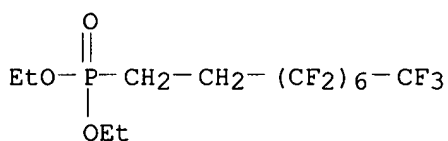
IT 23068-07-7P 23068-08-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation)

(prepn. and reaction with hydrochloric acid)

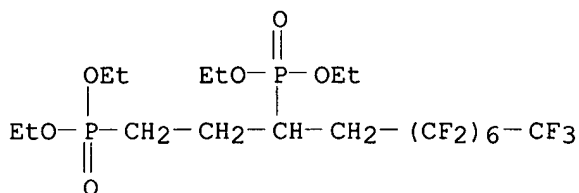
RN 23068-07-7 HCAPLUS

CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluorononyl)-,
diethyl ester (8CI, 9CI) (CA INDEX NAME)



RN 23068-08-8 HCAPLUS

CN Phosphonic acid, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-
1,3-propanediyl]bis-, tetraethyl ester (9CI) (CA INDEX NAME)



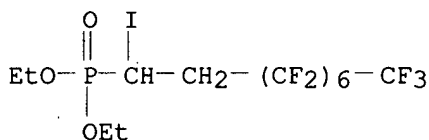
IT 23068-06-6P 23144-30-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)

(prepn. and redn. of)

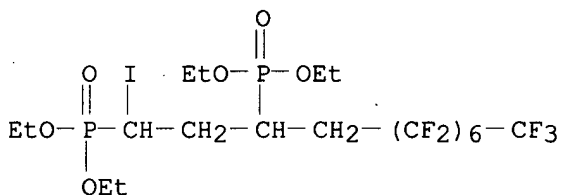
RN 23068-06-6 HCAPLUS

CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluoro-1-iodononyl)-, diethyl ester (8CI, 9CI) (CA INDEX NAME)



RN 23144-30-1 HCAPLUS

CN Phosphonic acid, [1-iodo-3-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-1,3-propanediyl]bis-, tetraethyl ester (9CI) (CA INDEX NAME)



L124 ANSWER 33 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1975:409083 HCAPLUS

DN 83:9083

TI Oxidative chlorophosphorylation of 2-perfluoroalkyl- and 2-(perchloromethyl)ethylenes

AU Demarcq, Michel; Sleziona, Joseph

CS Cent. Rech., Prod. Chim. Uguine Kuhlmann, Pierre-Benite, Fr.

SO Phosphorus (1974), 4(3), 173-8

CODEN: PHUSBV

DT Journal

LA English

CC 23-8 (Aliphatic Compounds)

AB Olefins RCH:CH2CH:CH2 (R = CCl3 or normal CnF2n+1 with n = 4, 6, 8, 10) react with PCl3 and O to give ClCH2CHROP(O)Cl2; only trace amts. of phosphoryl chlorides are produced. When R = CCl3, .alpha.,.beta.-dichloropropionyl chloride ClCH2CHClCOCl is obtained simultaneously. Long chain CnF2n+1CH(CH2Cl)OP(O)(OH)2, derived from the corresponding acid chlorides by hydrolysis, are good surface-active agents. Alkaline sapon.

of the latter yields as a major product $C_nF_{2n+1}CH(OH)CH_2OP(O)(OH)_2$, presumably thorough a cyclic intermediate.

ST chlorophosphorylation polyhaloalkene oxidn; alkene polyhalo chlorophosphorylation; phosphorodichloridate polyhaloalkyl; haloalkyl phosphorodichloridate; phosphate polyfluoroalkyl; propionyl chloride dichloro; chloropropionyl chloride; fluoroalkyl phosphorus ester; surface tension chloropolyfluoroalkyl phosphate

IT Surface tension
(of aq. chloroperfluoroalkyl phosphates)

IT Phosphorylation, synthetic
(oxidative, of (perfluoroalkyl)- and (trichloromethyl)methylenes)

IT Alkenes, reactions
RL: RCT (Reactant)
(polyfluoro- and trichloro-, oxidative chlorophosphorylation of)

IT 55064-76-1
RL: PRP (Properties)
(mass spectrum of)

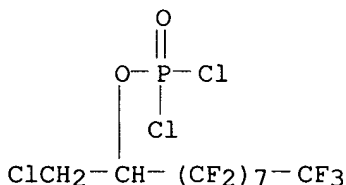
IT 2233-00-3 19430-93-4 21652-58-4 25291-17-2 30389-25-4
RL: RCT (Reactant)
(oxidative chlorophosphorylation of)

IT 7623-13-4P 36945-22-9P 38471-85-1P 38471-86-2P 54617-02-6P
54617-03-7P 54674-51-0P 55064-72-7P 55064-73-8P
55064-74-9P 55064-75-0P 55100-92-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

IT 36945-22-9P 54617-03-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

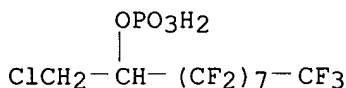
RN 36945-22-9 HCAPLUS

CN Phosphorodichloridic acid, 1-(chloromethyl)-2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-heptafluorononyl ester (9CI) (CA INDEX NAME)



RN 54617-03-7 HCAPLUS

CN 2-Decanol, 1-chloro-3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heptafluoro-, dihydrogen phosphate (9CI) (CA INDEX NAME)



L124 ANSWER 34 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1974:72042 HCAPLUS

DN 80:72042

TI Perfluoroalkyl phosphonates

IN Chance, Leon H.; Moreau, Jerry P.

PA United States Dept. of Agriculture

SO U.S., 4 pp. Division of U.S. 3,639,144 (CA 76;142352j).

CODEN: USXXAM

DT Patent

LA English

IC C07F

NCL 260932000

CC 39-10 (Textiles)

Section cross-reference(s): 29

FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3763282	A	19731002	US 1971-151558	19710609
	US 3639144	A	19720201	US 1969-843200	19690718
PRAI	US 1969-843200		19690718		

AB Diethyl vinylphosphonate (I) [682-30-4] was treated with perfluoroheptyl iodide (II) [335-58-0] to give a perfluorononyl iodide monomer and a telomer ester adduct, which were subsequently reduced, converted to phosphonic acids, phosphonic chlorides, and aziridiny phosphine oxides which were used to impart water, oil and soil resistance to cotton fabric. A mixt. contg. I 57.8, II 192.1, and azobisisobutyronitrile 1.15g was heated to 80.deg., and an exothermic reaction at 85.deg. for 6 hr gave 153:1g mixt. of diethyl 1-iodo-1H,2H2H-perfluorononylphosphonate [23068-06-6] and tetraethyl 1-(1H,1H-perfluorooctyl)-3-iodo-1,3-trimethylenediphosphonate [23144-30-1]. A mixt. of 29g 1H, 1H, 2H, 2H-perfluorononylphosphonic dichloride [23068-09-9] and 75 ml of CCl4 was added to a compn. contg. 12.6g Et3N, 5.4g aziridine [151-56-4] and 100 ml of CCl4, and the mixt. was heated 1 hr at 35-40.deg., to give 1H, 1H, 2H, 2H-perfluorononylbis(1-aziridiny)phosphine oxide (III) [23068-13-5], m. 49-50.deg.. 1-(1H, 1H-perfluorooctyl)-1,3-trimethylenedisphosphonic acid [23068-12-4] was similarly treated to give 1-(1H, 1H-perfluorooctyl)-1,3-trimethylenebis[di(aziridiny)phosphine oxide] [23081-40-5], m. 103-7.deg.. A cotton print cloth treated with a 5% aq. soln. of III contg. 1% Zn(BF4)2 and cured 5 min at 140.deg., had good strength retention and oil repellency (AATCC 118-1966 T) 6. After 5 launderings the oil repellency was 3 and after 5 drycleanings the oil repellency was 2. The spray rating (AATCC 22-1964) was 50 before and after 5 launderings.

ST oil repellency cotton fabric; water resistance cotton fabric; ethyliodofluorononyl phosphonate manuf; fluorononyl aziridiny phosphine oxide; methylene phosphine oxide fluorooctyl; textile oil water repellency

IT Oils

RL: USES (Uses)

(-proofing, of cotton textiles, **perfluoroalkyl** phosphonates for)

IT Waterproofing

(of cotton textiles, **perfluoroalkyl** phosphonates for)

IT Textiles

(waterproofing of cotton, **perfluoroalkyl** phosphonates for)

IT 23068-13-5 23081-40-5

RL: USES (Uses)

(oil-, soil- and waterproofing agents, for cotton textiles)

IT 23068-06-6P 23068-07-7P 23068-08-8P

23068-09-9P 23068-10-2P 23068-11-3P

23068-12-4P 23144-30-1P

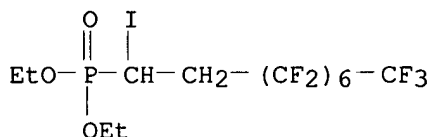
RL: IMF (Industrial manufacture); PREP (Preparation)

(prepn. of)

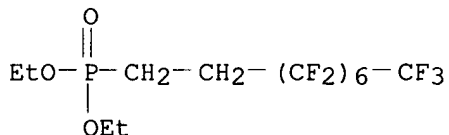
IT 335-58-0

RL: RCT (Reactant)

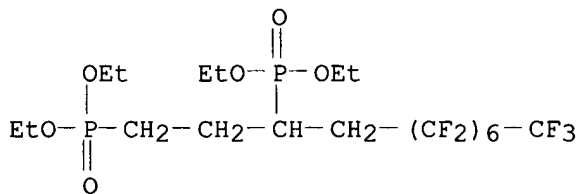
(reaction of, with diethyl-vinylphosphonate)
 IT 682-30-4
 RL: RCT (Reactant)
 (reaction of, with perfluoroheptyl iodide)
 IT 151-56-4, reactions
 RL: RCT (Reactant)
 (with perfluorononylphosphonic dichloride or
 perfluorooctyltrimethylenediphosphonic acid)
 IT 23068-06-6P 23068-07-7P 23068-08-8P
 23068-09-9P 23068-10-2P 23068-11-3P
 23068-12-4P 23144-30-1P
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (prepn. of)
 RN 23068-06-6 HCAPLUS
 CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluoro-1-
 iodononyl)-, diethyl ester (8CI, 9CI) (CA INDEX NAME)



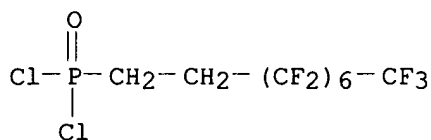
RN 23068-07-7 HCAPLUS
 CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluorononyl)-,
 diethyl ester (8CI, 9CI) (CA INDEX NAME)



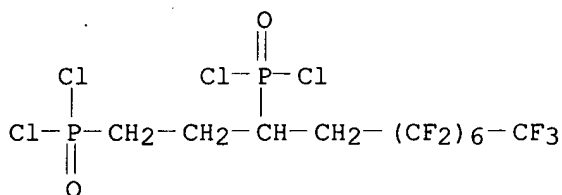
RN 23068-08-8 HCAPLUS
 CN Phosphonic acid, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-
 1,3-propanediyl]bis-, tetraethyl ester (9CI) (CA INDEX NAME)



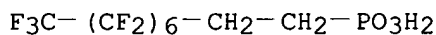
RN 23068-09-9 HCAPLUS
 CN Phosphonic dichloride, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-
 pentadecafluorononyl)- (8CI, 9CI) (CA INDEX NAME)



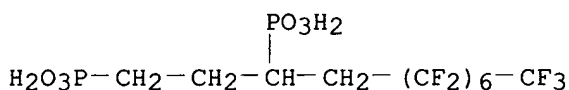
RN 23068-10-2 HCAPLUS
CN Phosphonic dichloride, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-1,3-propanediyl]bis- (9CI) (CA INDEX NAME)



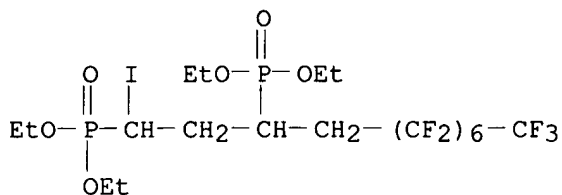
RN 23068-11-3 HCAPLUS
CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluorononyl)- (8CI, 9CI) (CA INDEX NAME)



RN 23068-12-4 HCAPLUS
CN Phosphonic acid, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-1,3-propanediyl]bis- (9CI) (CA INDEX NAME)



RN 23144-30-1 HCAPLUS
CN Phosphonic acid, [1-iodo-3-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-1,3-propanediyl]bis-, tetraethyl ester (9CI) (CA INDEX NAME)



L124 ANSWER 35 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN 1973:420249 HCAPLUS
DN 79:20249
TI Organophosphorus compounds containing perfluoroalkyl radicals and their

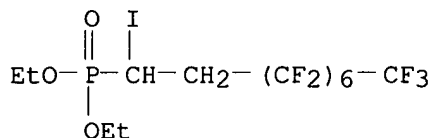
KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

application to cellulosic textiles
 IN Chance, Leon H.; Moreau, Jerry P.
 SO U.S., 6 pp. Division of U.S. 3,639,144 (CA 76;142352j).
 CODEN: USXXAM
 DT Patent
 LA English
 IC C07F; D06M
 NCL 008116000P
 CC 39-10 (Textiles)
 FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3719448	A	19730306	US 1971-151556	19710609
	US 3639144	A	19720201	US 1969-843200	19690718
PRAI	US 1969-843200		19690718		
AB	1H,1,2H,2H-perfluorononylbis(1-aziridinyl)phosphine oxide (I) [23068-13-5] and 1-(1H,1H-perfluorooctyl)-1,3-trimethylenebis[di(1-aziridinyl)phosphine oxide] [23081-40-5] were manufd. from perfluoroalkyl iodide monomer and telomer ester adducts of diethyl vinylphosphonate [682-30-4] and used to oil proof and water proof cotton textiles in a single bath process with zinc fluoroborate (II) catalyst. Cotton print cloth was immersed in 1% II soln., dried, impregnated with a soln. of I 0.5, H2O 4.5, and EtOH 5.0 g, dried, and cured 20 min at 120.deg. to give a fabric with an oil rating initially, after extn. with C2Cl4 3 hr, and after 5 laundering cycles, 5, 5, and 2 resp. The prepn. of 8 precursors of the finishing agents was given.				
ST	waterproofing cotton textile; oilproofing cotton textile; fluoroalkyl oilproofing cotton; phosphine oxide oilproofing cotton; aziridine oilproofing cotton				
IT	Oils RL: USES (Uses) (-proofing, of cotton textile, by perfluorononylbisaziridinylphosphine oxide or perfluorooctyltrimethylenebis[diaziridinyl)phosphine oxide])				
IT	Waterproofing (of cotton textiles, by perfluorononylbisaziridinylphosphine oxide or perfluorooctyltrimethylenebis[diaziridinylphosphine oxide])				
IT	Textiles (oilproofing and waterproofing of cotton, by perfluorononylbis(aziridinyl)phosphine oxide or (perfluorooctyl)trimethylenebis[di(aziridinyl)phosphine oxide])				
IT	23068-13-5 23081-40-5 RL: USES (Uses) (for oilproofing and waterproofing of cotton textiles)				
IT	23068-06-6P 23068-07-7P 23068-08-8P 23068-09-9P 23068-10-2P 23068-11-3P 23068-12-4P 23144-30-1P RL: IMF (Industrial manufacture); PREP (Preparation) (prepn. of)				
IT	335-58-0 RL: RCT (Reactant) (reaction of, with diethyl vinylphosphonate)				
IT	682-30-4 RL: RCT (Reactant) (reaction of, with perfluoroheptyl iodide)				
IT	23068-06-6P 23068-07-7P 23068-08-8P 23068-09-9P 23068-10-2P 23068-11-3P 23068-12-4P 23144-30-1P RL: IMF (Industrial manufacture); PREP (Preparation) (prepn. of)				

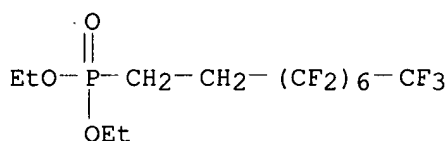
RN 23068-06-6 HCAPLUS

CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluoro-1-iodononyl)-, diethyl ester (8CI, 9CI) (CA INDEX NAME)



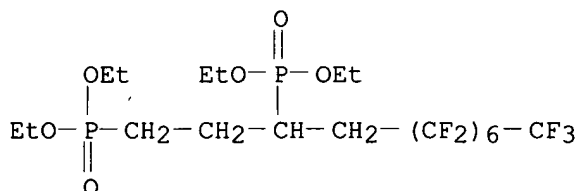
RN 23068-07-7 HCAPLUS

CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluorononyl)-, diethyl ester (8CI, 9CI) (CA INDEX NAME)



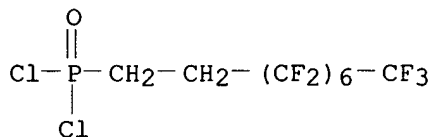
RN 23068-08-8 HCAPLUS

CN Phosphonic acid, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-1,3-propanediyl]bis-, tetraethyl ester (9CI) (CA INDEX NAME)



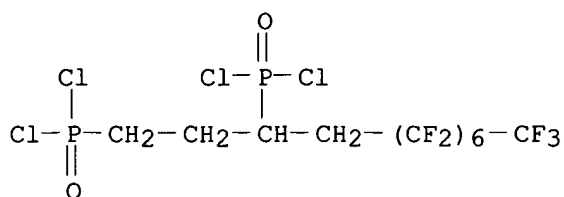
RN 23068-09-9 HCAPLUS

CN Phosphonic dichloride, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluorononyl)- (8CI, 9CI) (CA INDEX NAME)

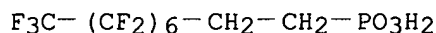


RN 23068-10-2 HCAPLUS

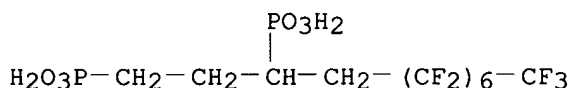
CN Phosphonic dichloride, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-1,3-propanediyl]bis- (9CI) (CA INDEX NAME)



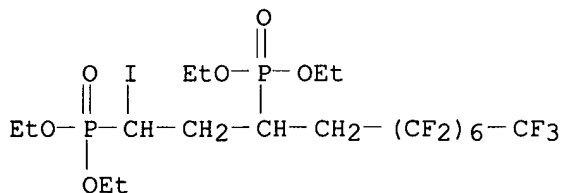
RN 23068-11-3 HCAPLUS
CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluorononyl)-
(8CI, 9CI) (CA INDEX NAME)



RN 23068-12-4 HCAPLUS
CN Phosphonic acid, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-
1,3-propanediyl]bis- (9CI) (CA INDEX NAME)



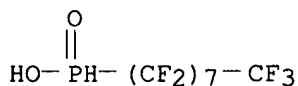
RN 23144-30-1 HCAPLUS
CN Phosphonic acid, [1-iodo-3-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-1,3-propanediyl]bis-, tetraethyl ester (9CI) (CA INDEX NAME)



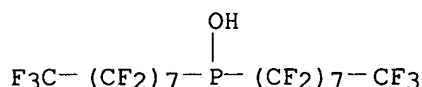
L124 ANSWER 36 OF 40 HCAPLUS COPYRIGHT 2002 ACS
AN 1973:5716 HCAPLUS
DN 78:5716
TI Surface-active perfluoroalkylphosphonic acids and
bis(perfluoroalkyl)phosphinic acids
IN Brecht, Heinz; Hoffmann, Dieter
PA Farbwerke Hoechst A.-G.
SO Ger. Offen., 11 pp.
CODEN: GWXXBX
DT Patent
LA German
IC C07F; C11D
CC 46-4 (Surface Active Agents and Detergents)
Section cross-reference(s): 29
FAN.CNT 1

PATENT NO. KIND DATE APPLICATION NO. DATE

PI	DE 2110767	A	19720928	DE 1971-2110767	19710306
	DE 2110767	B2	19730712		
	DE 2110767	C3	19740214		
	NL 7202696	A	19720908	NL 1972-2696	19720301
	NL 172546	B	19830418		
	NL 172546	C	19830916		
	CH 565808	A	19750829	CH 1972-3068	19720302
	GB 1388924	A	19750326	GB 1972-9990	19720303
	CA 977345	A1	19751104	CA 1972-136164	19720303
	JP 56016198	B4	19810415	JP 1972-21625	19720303
	IT 953469	A	19730810	IT 1972-21454	19720304
	BE 780266	A1	19720906	BE 1972-114733	19720306
	FR 2128653	A5	19721020	FR 1972-7677	19720306
	FR 2128653	B1	19771223		
PRAI	DE 1971-2110767		19710306		
AB	Four RP(O)(OH)2 and 4 R2P(O)OH (R = C4F9, C6F13, C8F17, and C10F21) in part as mixts. and a mixt. of the corresponding perfluorinated-C12-24 compds. were prep'd. by hydrolysis of RPI2 and R2PI (or their mixt.) via RP(OH)2 and R2POH (in part without isolation) and subsequent oxidn. with H2O2. The surface tension of, e.g., 10 or 5000 ppm C8F17P(O)(OH)2 in H2O was 60 or 22 dyne/cm, resp.				
ST	fluoroalkylphosphonic acid surfactant; phosphonic acid perfluoroalkyl surfactant; phosphinic acid perfluoroalkyl surfactant				
IT	Surfactants				
	(perfluoroalkyl phosphorus acid derivs.)				
IT	Phosphinic acid, perfluoroalkyl derivs.				
	Phosphonic acid, perfluoroalkyl derivs.				
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(surfactants)				
IT	39823-44-4	39823-45-5	39823-47-7	39823-48-8	39823-49-9
	39823-50-2	39867-49-7			
	RL: RCT (Reactant)				
	(hydrolysis and oxidn. of)				
IT	40143-80-4P 40143-81-5P 40143-89-3P				
	RL: SPN (Synthetic preparation); PREP (Preparation)				
	(prepn. of)				
IT	39278-42-7	39278-46-1	39278-52-9	39278-57-4	40143-76-8
	40143-77-9	40143-78-0	40143-79-1		
	RL: TEM (Technical or engineered material use); USES (Uses)				
	(surfactants, surface tension of solns. contg.)				
IT	40143-80-4P 40143-81-5P 40143-89-3P				
	RL: SPN (Synthetic preparation); PREP (Preparation)				
	(prepn. of)				
RN	40143-80-4 HCAPLUS				
CN	Phosphinic acid, (heptadecafluorooctyl)- (9CI) (CA INDEX NAME)				

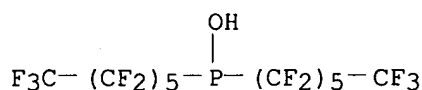


RN 40143-81-5 HCAPLUS
 CN Phosphinous acid, bis(heptadecafluorooctyl)- (9CI) (CA INDEX NAME)



RN 40143-89-3 HCAPLUS

CN Phosphinous acid, bis(tridecafluorohexyl)- (9CI) (CA INDEX NAME)



L124 ANSWER 37 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1972:142352 HCAPLUS

DN 76:142352

TI Organophosphorus compounds containing perfluoroalkyl radicals for imparting oil and water repellency to cottons

IN Chance, Leon H.; Moreau, Jerry P.

PA United States Dept. of Agriculture

SO U.S., 5 pp.

CODEN: USXXAM

DT Patent

LA English

IC B44D

NCL 117056000

CC 39 (Textiles)

Section cross-reference(s): 29

FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3639144	A	19720201	US 1969-843200	19690718
	US 3719448	A	19730306	US 1971-151556	19710609
	US 3763282	A	19731002	US 1971-151558	19710609
	US 3910886	A	19751007	US 1971-151507	19710609
	US 3937724	A	19760210	US 1975-561587	19750324
	US 3972924	A	19760803	US 1975-630375	19751110
PRAI	US 1969-843200		19690718		
	US 1971-151507		19710609		
	US 1975-561587		19750324		

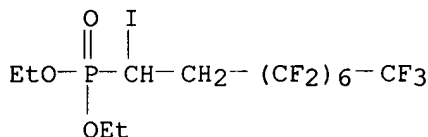
AB Cotton fabric had improved oil and water repellency by treating with an aq. soln. of Zn fluoroborate catalyst contg. 1H,1H,2H,2H-perfluorononylbis(1-aziridiny)phosphine oxide (I) [23068-13-5] or 1-(1H,1H-perfluorooctyl)-1,3-trimethylenebis(di-1-aziridiny)phosphine oxide (II) [23081-40-5]. For example, diethyl vinylphosphonate and perfluoroheptyl iodide reacted to give a mixt. of di-Et 1-iodo-1H,2H,2H-perfluorononylphosphonate and tetraethyl 1-(1H,1H-perfluorooctyl)-3-iodo-1,3-trimethylenediphosphonate, which was treated with Zn in HCl to sep. di-Et 1H,2H,2H-perfluorononylphosphonate (III). III diacid chloride analog salt was treated with aziridine in Et₃N and CCl₄ to give I. Cotton printcloth was treated with 1% Zn fluoroborate and 5% I in EtOH and optionally dimethylolethyleneurea to 80-85% wet pickup. The dried and cured cloth had an oil rating of 5 and a value of 2 after 5 laundering cycles.

ST oil resistance cotton fabric; fluoraziridiny phosphine oxide

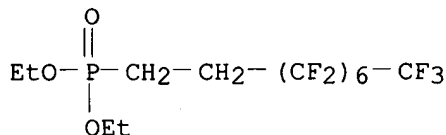
IT Oils

RL: USES (Uses)

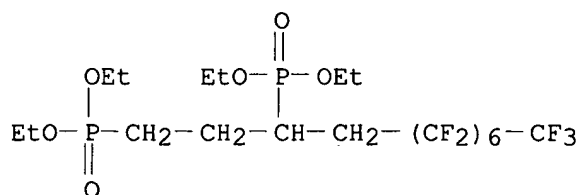
- (-proofing, of cotton textiles, by **perfluoroalkyl** aziridinyl phosphine oxide in presence of zinc fluoroborate)
- IT Waterproofing
(of cotton textiles, by **perfluoroalkyl** aziridinyl phosphine oxide in presence of zinc fluoroborate)
- IT Textiles
(oil- and waterproofing of cotton, by **perfluoroalkyl** aziridinyl phosphine oxide in presence of zinc fluoroborate)
- IT 13826-88-5
RL: USES (Uses)
(oil- and waterpproofing cotton textiles in presence of, by **perfluoroalkyl** aziridinyl phosphine oxide)
- IT 23068-13-5 23081-40-5
RL: USES (Uses)
(oil- and waterproofing cotton textiles by, in presence of zinc fluoroborate)
- IT 23068-06-6P 23068-07-7P 23068-08-8P
23068-09-9P 23068-10-2P 23068-11-3P
23144-30-1P
RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of)
- IT 23068-06-6P 23068-07-7P 23068-08-8P
23068-09-9P 23068-10-2P 23068-11-3P
23144-30-1P
RL: IMF (Industrial manufacture); PREP (Preparation)
(prepn. of)
- RN 23068-06-6 HCAPLUS
- CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluoro-1-iodononyl)-, diethyl ester (8CI, 9CI) (CA INDEX NAME)



- RN 23068-07-7 HCAPLUS
- CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluorononyl)-, diethyl ester (8CI, 9CI) (CA INDEX NAME)

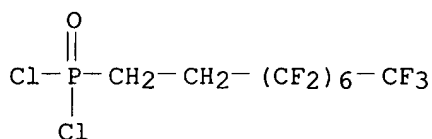


- RN 23068-08-8 HCAPLUS
- CN Phosphonic acid, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-1,3-propanediyl]bis-, tetraethyl ester (9CI) (CA INDEX NAME)



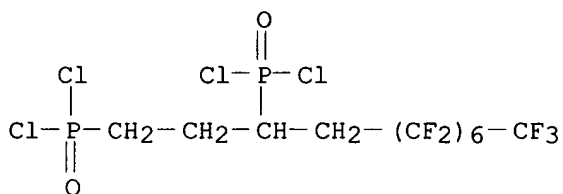
RN 23068-09-9 HCAPLUS

CN Phosphonic dichloride, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluorononyl)- (8CI, 9CI) (CA INDEX NAME)



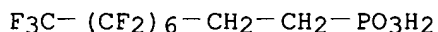
RN 23068-10-2 HCAPLUS

CN Phosphonic dichloride, [1-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-1,3-propanediyl]bis- (9CI) (CA INDEX NAME)



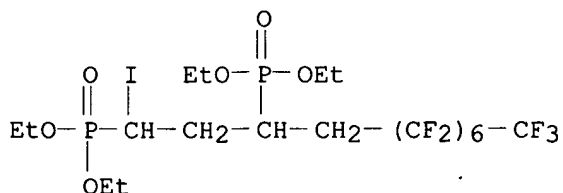
RN 23068-11-3 HCAPLUS

CN Phosphonic acid, (3,3,4,4,5,5,6,6,7,7,8,8,9,9,9-pentadecafluorononyl)- (8CI, 9CI) (CA INDEX NAME)



RN 23144-30-1 HCAPLUS

CN Phosphonic acid, [1-iodo-3-(2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-pentadecafluorooctyl)-1,3-propanediyl]bis-, tetraethyl ester (9CI) (CA INDEX NAME)



L124 ANSWER 38 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1972:126315 HCAPLUS

DN 76:126315

TI Catalytic phosphorylation of polyfluorinated alcohols. 2. Preparation of polyfluoroalkylchlorophosphates by the phosphorylation of polyfluorinated alcohols

AU Zakharov, L. S.; Pisarenko, V. V.; Godovikov, N. N.; Kabachnik, M. I.

CS Inst. Elementoorg. Soedin., Moscow, USSR

SO Izv. Akad. Nauk SSSR, Ser. Khim. (1971), (12), 2671-4

CODEN: IASKA6

DT Journal

LA Russian

CC 23 (Aliphatic Compounds)

AB Refluxing 20 g CF₃CF₂CF₂CH₂OH (I) with 50 ml POCl₃ in the presence of 0.001-0.03 mole KCl or CaCl₂ catalyst at 140.degree. gave in several hr 30-50% CF₃CF₂CF₂CH₂OPOCl₂ (II); without the catalyst the reaction gave <25% yield in 13 hr. With 0.1 mole AlCl₃ in 13 hr, the yield was 54%, and dropped to 31% with 0.3 mole AlCl₃. In the latter cases a product of addn. of AlCl₃ to II and its analogs was isolated as a distillable viscous oil. The complexes are formed also by (RO)₃PO and AlCl₃, probably by coordination of the O atom of the phosphoryl group and the Al atom to form a charge transfer complex with POCl₃, which is then able to react with the fluorinated alc. to form the ester chloride complexes. Similarly were prepd. (RO)₂POCl in 50% yield from I and CF₃CH₂CH₂OH.

ST fluoro alc aliph phosphorylation catalyst

IT Phosphorylation catalysts

(metal chlorides, for aliphatic fluoro alcs.)

IT 7446-70-0, uses and miscellaneous 7447-40-7, uses and miscellaneous

10043-52-4, uses and miscellaneous

RL: CAT (Catalyst use); USES (Uses)

(catalysts, for phosphorylation of aliphatic fluoro alcs.)

IT 375-01-9 2240-88-2

RL: RCT (Reactant)

(phosphorylation of, catalysts for)

IT 6780-81-0P 30787-77-0P 35469-08-0P 35469-10-4P 35469-11-5P
36466-82-7P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of)

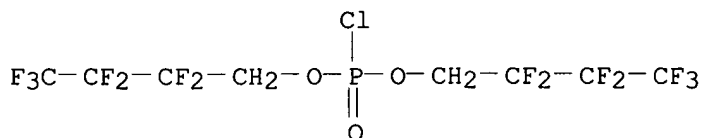
IT 6780-81-0P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of)

RN 6780-81-0 HCAPLUS

CN Phosphorochloridic acid, bis(2,2,3,3,4,4,4-heptafluorobutyl) ester (8CI,
9CI) (CA INDEX NAME)



L124 ANSWER 39 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1969:57131 HCAPLUS

DN 70:57131

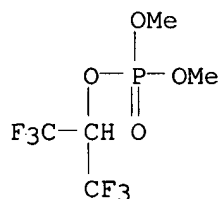
TI Perfluoroalkyl phosphates

IN Braun, Robert A.

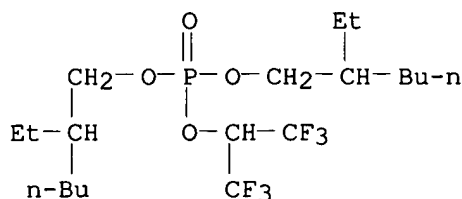
PA du Pont de Nemours, E. I., and Co.

SO U.S., 2 pp.
 CODEN: USXXAM
 DT Patent
 LA English
 NCL 260955000
 CC 23 (Aliphatic Compounds)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3412181	A	19681119	US 1965-447088	19650409
AB	The title compds. (RO)2P(O)OCH(CF3)2 (I) are liquids or low m. solids, nonflammable, stable to 200.degree., useful as wetting agents, high temp. lubricants, and anti-fouling additives for gasoline and oil. They are prepd. by the reaction 2-6 hrs. of a dialkyl phosphonate with a perfluoro ketone at 0-150.degree. with no solvent. Thus, 0.6 mole (CF3)2CO was added to 0.6 mole HP(O)(OMe)2 at -20.degree. and the mixt. warmed to 25.degree. for 2 hrs., then 50.degree. for 2 hrs., and fractionated to give I (R = Me), b. 168.degree., n25D 1.3279. Also prepd. (at 150.degree. in a bomb) was I (R = Ph), b1.75 140.degree., m. 35-6.degree., and (similarly) I (R is 2-ethylhexyl), n25D 1.4065.				
ST	phosphate esters; esters phosphate; wetting agents phosphate esters; lubricant phosphate esters; gasoline additive phosphate esters				
IT	Perfluoro compounds				
	RL: RCT (Reactant)				
	(ketones, reaction with dialkyl phosphonates)				
IT	Ketones, reactions				
	RL: RCT (Reactant)				
	(perfluoro, with dialkyl phosphonates)				
IT	Phosphonic acid, dialkyl esters				
	RL: RCT (Reactant)				
	(reaction of, with perfluoro ketones)				
IT	19784-21-5P 22410-38-4P 22410-39-5P				
	RL: SPN (Synthetic preparation); PREP (Preparation)				
	(prepn. of)				
IT	19784-21-5P 22410-39-5P				
	RL: SPN (Synthetic preparation); PREP (Preparation)				
	(prepn. of)				
RN	19784-21-5 HCAPLUS				
CN	Phosphoric acid, dimethyl 2,2,2-trifluoro-1-(trifluoromethyl)ethyl ester (8CI, 9CI) (CA INDEX NAME)				



RN 22410-39-5 HCAPLUS
 CN Phosphoric acid, bis(2-ethylhexyl) 2,2,2-trifluoro-1-(trifluoromethyl)ethyl ester (8CI) (CA INDEX NAME)



L124 ANSWER 40 OF 40 HCAPLUS COPYRIGHT 2002 ACS

AN 1967:104686 HCAPLUS

DN 66:104686

TI Perfluorinated ether alcohols

IN Le Bleu, Ronald E.; Fassnacht, John H.

PA du Pont de Nemours, E. I., and Co.

SO U.S., 6 pp.

CODEN: USXXAM

DT Patent

LA English

NCL 260615000

CC 23 (Aliphatic Compounds)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3293306		19661220	US	19621227
AB	<p>Perfluorinated aliphatic alcs. contg. fluoromethylene groups linked with O are prepd. by the redn. of perfluoroalkoxy acid fluorides which are obtained from the polymn. of tetrafluoroethylene oxide or hexafluoropropylene oxide in the presence of activated C or ionic salts. The acid fluorides were prepd. by charging 28.6 parts Darco to a dry stainless cylinder; after cooling in liquid N, 400 parts of hexafluoropropylene oxide was added and the mixt. maintained at -10 to -15.degree. for 3 days. Fractional distn. gave the following CF₃CF₂CF₂O[CF(CF₃)CF₂O]_nCF(CF₃)COF (n and b.p./mm. given): 4, 53-63.degree./0.3; 5, 63-76.degree./0.35; 6, 81-100.degree./0.4; 7, 100-12.degree./0.35; 10, 138-56.degree./0.4; 11, 156-73.degree./0.4; 12, 170-85.degree./0.4; 14, 190-205.degree./0.4. When tetrafluoroethylene oxide was charged into a cylinder contg. tetraethylammonium cyanide in 1-chloro-2,2,3,3-tetrafluoropropane maintained at <-25.degree. and <30 psig., the following CF₃CF₂O(CF₂CF₂O)_nCF₂COF were recovered by distn. (same data given): 0, 0-6.degree./760; 1, 65-8.degree./760.degree.; 2, 99-102.degree./760; 3, 134-38.degree./760; 4, 167-70.degree./760; 5, 199-202.degree./760; 6, 230.degree./760; 7, 105-20.degree./1; 8, 122-44.degree./1; 9-10, 144-52.degree./1. The alcs. are prepd. from the acid fluorides by NaBH₄ redn. of the acid fluorides in dioxane. New alcs. prepd. were CF₃CF₂CF₂OCF(CF₃)CF₂OCF(CF₃)CH₂OH, b. 155-6.degree., CF₃CF₂CF₂O[CF(CF₃)CF₂O]₂CF(CF₃)CH₂O, b₅₀ 115.degree., d₂₅ 1.7685, m. .apprx.-30.degree. to -35.degree., CF₃CF₂OCF₂CF₂OCF₂CH₂OH, b. 125.degree., d₂₅₄ 1.6165, CF₃CF₂O(CF₂CF₂O)₂CF₂CH₂OH, b. 149.degree., d₂₅₄ 1.6597, CF₃CF₂O(CF₂CF₂O)₃CF₂CH₂OH, b. 170-3.degree., CF₃CF₂O(CF₂CF₂O)₉CF₂CH₂OH, b_{1.5} 130-55.degree.. These new alcs. are useful as intermediates in prepg. lubricants for high temp. engines. Thus, a mixt. of 300 parts (0.62 mole) CF₃CF₂CF₂OCF(CF₃)CF₂OCF(CF₃)CH₂OH, 29 parts (0.13 mole) pyromellitic dianhydride, and 2 parts H₂SO₄ was stirred while heated at reflux. After the theoretical amt. of water was removed, the reaction mixt. was cooled and neutralized with aq. NaOH. The aq. layer was sepd. from the org. layer and the latter was clarified with C, dried over MgSO₄, and filtered. The unreacted alc. was removed by distn. giving 63%</p>				

1,2,4,5-C6H2[CO2CH2CF(CF3)OCF2CF(CF3)OCF2CF2CF3]4. Phosphates of the alcs. possess oil-repellent properties and are prepd. Thus, a dry, N-blanketed reactor was charged with 14.78 parts 1H,1H-pentadecafluoro-3,6,9-trioxa-1-hendecanol, b. 149.degree., 207 parts diethyl phosphite, and 6.5 parts m-xylene, refluxed 30 hrs., and EtOH removed as formed to give 5.40 parts bis(1H,1H-pentadecafluoro-3,6,9-trioxahendecyl) phosphite, b0.3 95-8.degree., d25 1.6971. Into 2.5 parts of this agitated polyfluorohendecyl phosphite was passed dry nitrogen dioxide <50.degree., until the brown color of nitrogen dioxide persisted. Treatment with NH3 gave [CF3CF2O(CF2CF2O)2CF2CH2O]2P(O)ONH4.

ST PERFLUORINATED ETHER ALCS; ETHER ALCS PERFLUORINATED; FLUORINATED ETHER ALCS; ALCS FLUORINATED ETHER

IT Oils
RL: RCT (Reactant)
(-proofing of paper, ammonium salts of fluorinated polyoxaalkyl phosphates as)

IT Alcohols, preparation
RL: PREP (Preparation)
(polyfluoro polyether, manuf. of)

IT Perfluoro compounds
RL: RCT (Reactant)
(polyoxaalcs. chloride, manuf. of)

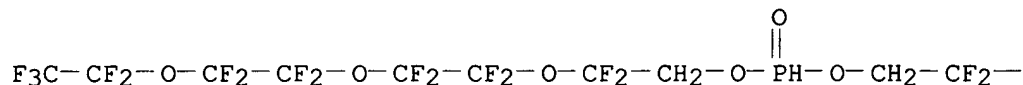
IT 14548-74-4P 14548-75-5P 14548-76-6P 14548-77-7P 14548-78-8P
14620-81-6P 14620-82-7P 14620-83-8P 14843-75-5P 16110-57-9P
16961-15-2P **17189-62-7P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

IT **17189-62-7P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

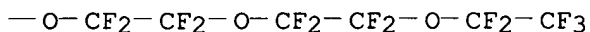
RN 17189-62-7 HCAPLUS

CN Phosphonic acid, bis[2,2-difluoro-2-[1,1,2,2-tetrafluoro-2-[1,1,2,2-tetrafluoro-2-(pentafluoroethoxy)ethoxy]ethoxy]ethyl] ester (8CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



=> d que

L11 77149 SEA FILE=REGISTRY ABB=ON (P(L)F(L)H(L)O(L)C)/ELS(L)5-7/ELC.SUB

L12 35189 SEA FILE=REGISTRY ABB=ON L11 AND 6-300/F

L15 (42597)SEA FILE=REGISTRY ABB=ON (P(L)F(L)H(L)O(L)C)/ELS(L)5-6/ELC.SUB

L16 (8142)SEA FILE=REGISTRY ABB=ON L15 NOT 1-100/NR

L17 (6126)SEA FILE=REGISTRY ABB=ON L16 NOT 1-10/N
L18 (5499)SEA FILE=REGISTRY ABB=ON L17 NOT 1-10/S
L19 (4440)SEA FILE=REGISTRY ABB=ON L18 NOT 1-10/M
L20 (7028)SEA FILE=HCAPLUS ABB=ON L19
L21 (40)SEA FILE=HCAPLUS ABB=ON L20 AND (LUBRIC? OR GREASE)
L22 (12)SEA FILE=HCAPLUS ABB=ON L20 AND OIL#(3A)ADDITIV?
L23 (40)SEA FILE=HCAPLUS ABB=ON L21 OR L22
L24 (18)SEA FILE=HCAPLUS ABB=ON L23 AND PERFLUORO?
L25 (16)SEA FILE=REGISTRY ABB=ON L19 AND ETHER
L26 (48)SEA FILE=REGISTRY ABB=ON L19 AND PER?
L27 (61)SEA FILE=REGISTRY ABB=ON L25 OR L26
L28 (121)SEA FILE=HCAPLUS ABB=ON L27
L29 (45)SEA FILE=HCAPLUS ABB=ON L28(L) (PREP OR SPN OR IMF)/RL
L30 (19)SEA FILE=HCAPLUS ABB=ON L29 AND PERFLUOR?/IT
L31 (9)SEA FILE=HCAPLUS ABB=ON L29 AND (OIL# OR GREAS? OR LUBRICAT?
OR ?WEAR? OR ?FRICTION?)
L32 40 SEA FILE=HCAPLUS ABB=ON L24 OR L30 OR L31
L34 18084 SEA FILE=REGISTRY ABB=ON L12 NOT 1-10/N
L35 15461 SEA FILE=REGISTRY ABB=ON L34 NOT 1-10/S
L36 4449 SEA FILE=REGISTRY ABB=ON L35 NOT 1-10/M
L37 2489 SEA FILE=HCAPLUS ABB=ON L36
L38 55 SEA FILE=HCAPLUS ABB=ON L37 AND (LUBRICAT? OR GREAS?)
L39 43 SEA FILE=HCAPLUS ABB=ON L38 NOT L32
L40 1258 SEA FILE=HCAPLUS ABB=ON L37(L) (PREP OR SPN OR IMF)/RL
L41 13 SEA FILE=HCAPLUS ABB=ON L39 AND L40
L44 12 SEA FILE=HCAPLUS ABB=ON L40 AND (OIL#(3A)ADDITIV? OR ?WEAR?
OR ?FRICTION?)
L45 9 SEA FILE=HCAPLUS ABB=ON (L44 OR L32) NOT L32
L46 15 SEA FILE=HCAPLUS ABB=ON L41 OR L45

=> d 146 all 1-15 hitstr

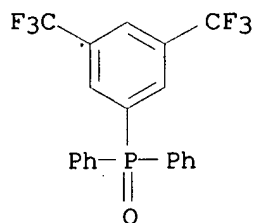
L46 ANSWER 1 OF 15 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:271446 HCAPLUS
DN 135:61667
TI Space environmentally stable polyimides and copolyimides derived from
bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide
AU Connell, John W.; Watson, Kent A.
CS Langley Research Center (LaRC), National Aeronautics and Space
Administration (NASA), Hampton, VA, 23681-2199, USA
SO High Performance Polymers (2001), 13(1), 23-34
CODEN: HPPOEX; ISSN: 0954-0083
PB Institute of Physics Publishing
DT Journal
LA English
CC 35-5 (Chemistry of Synthetic High Polymers)
AB Polyimides with a unique combination of properties including low color in
thin films, at. oxygen (AO) resistance, ultra-violet (UV) radiation
resistance, soly. in org. solvents in the imide form, high glass
transition (Tg) temps., and high thermal stability have been prepd. and
characterized. Polyimides were prepd. by reacting a novel arom. diamine,
bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide, with
various arom. dianhydrides in a polar aprotic solvent. Copolymers were
prepd. by the addn. of a second diamine. The soly. of the polymers in the
imide form as well as the color d. of thin films was dependent upon the
chem. structure of the dianhydride and the addnl. diamine. Thin films
(25-50 .mu.m thick) prepd. by soln. casting of amide acid or imide solns.
exhibited very low color and high optical transparency as detd. by
UV/visible spectroscopy. The polymers exhibited Tg values greater than

200.degree.C depending upon the structure of the dianhydride and temps. of 5% wt. loss .apprx.500.degree.C in air as detd. by dynamic thermogravimetric anal. (TGA). Thin films coated with silver/inconel were exposed to a high fluence of AO and 1000 equiv solar hours of UV radiation. The effects of these exposures on optical properties were minor. These space environmentally durable polymers are potentially useful in a variety of applications on spacecraft such as thin film membranes on antennae, second surface mirrors, thermal/optical coatings and multi-layer thermal insulation (MLI) blanket materials. The chem., phys. and mech. properties of the polymers as well as their responses to AO and UV exposure will be discussed.

- ST bisaminophenyldifluoromethylphenylphosphine oxide polyimide optical property; atomic oxygen UV resistance polyimide; thermal stability mech property polyimide
- IT Elongation, mechanical
(at break; space environmentally stable polyimides and copolyimides derived from bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide)
- IT Polyimides, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(fluorene group- and fluorine-contg., cardo; space environmentally stable polyimides and copolyimides derived from bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide)
- IT Polyethers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyamic acid-, fluorine-contg.; space environmentally stable polyimides and copolyimides derived from bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide)
- IT Polyethers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyamic acid-polyamide-, arom.; space environmentally stable polyimides and copolyimides derived from bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide)
- IT Polyamides, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyamic acid-polyether-, arom.; space environmentally stable polyimides and copolyimides derived from bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide)
- IT Fluoropolymers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyamic acid-polyether-, space environmentally stable polyimides and copolyimides derived from bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide)
- IT Polyamic acids
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyamide-polyether-, arom.; space environmentally stable polyimides and copolyimides derived from bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide)
- IT Polyimides, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyether-, arom., fluorene group-contg., cardo; space environmentally stable polyimides and copolyimides derived from bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide)
- IT Polyimides, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyether-, arom.; space environmentally stable polyimides and copolyimides derived from bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide)
- IT Polyamic acids
Polyimides, preparation

- RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyether-, fluorine-contg.; space environmentally stable polyimides
and copolyimides derived from bis(3-aminophenyl)-3,5-
di(trifluoromethyl)phenylphosphine oxide)
- IT Fluoropolymers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyether-polyimide-; space environmentally stable polyimides and
copolyimides derived from bis(3-aminophenyl)-3,5-
di(trifluoromethyl)phenylphosphine oxide)
- IT Cardo polymers
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyether-polyimides, arom., fluorene group-contg.; space
environmentally stable polyimides and copolyimides derived from
bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide)
- IT Polyethers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyimide-, arom., fluorene group-contg., cardo; space environmentally
stable polyimides and copolyimides derived from bis(3-aminophenyl)-3,5-
di(trifluoromethyl)phenylphosphine oxide)
- IT Polyethers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyimide-, arom.; space environmentally stable polyimides and
copolyimides derived from bis(3-aminophenyl)-3,5-
di(trifluoromethyl)phenylphosphine oxide)
- IT Fluoropolymers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyimide-, fluorene group-contg., cardo; space environmentally stable
polyimides and copolyimides derived from bis(3-aminophenyl)-3,5-
di(trifluoromethyl)phenylphosphine oxide)
- IT Polyethers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyimide-, fluorine-contg.; space environmentally stable polyimides
and copolyimides derived from bis(3-aminophenyl)-3,5-
di(trifluoromethyl)phenylphosphine oxide)
- IT Cardo polymers
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyimides, fluorene group- and fluorine-contg.; space environmentally
stable polyimides and copolyimides derived from bis(3-aminophenyl)-3,5-
di(trifluoromethyl)phenylphosphine oxide)
- IT Emissivity
Optical absorption
(solar; space environmentally stable polyimides and copolyimides
derived from bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine
oxide)
- IT Glass transition temperature
Tensile strength
Thermal stability
Transparency
UV radiation
Young's modulus
(space environmentally stable polyimides and copolyimides derived from
bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide)
- IT Erosion (wear)
(surface; space environmentally stable polyimides and copolyimides
derived from bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine
oxide)
- IT 328-70-1, 3,5-Bis(trifluoromethyl)bromobenzene 1499-21-4,
Diphenylphosphinic chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(in prepn. of bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine

oxide)
 IT 299176-62-8P 299176-63-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (in prepn. of bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide)
 IT 299176-32-2P 299176-39-9P 299176-43-5P 328385-85-9P 328385-87-1P
 328385-88-2P 328385-89-3P 328385-90-6P 328385-91-7P 328385-92-8P
 328385-93-9P 328385-94-0P 328385-95-1P 328385-96-2P 328385-97-3P
 328385-98-4P 328385-99-5P 328386-00-1P 328386-01-2P 328386-02-3P
 328386-03-4P 328386-04-5P 328386-05-6P 328386-06-7P 342822-58-6P
 342822-63-3P 346419-30-5P 346419-38-3P 346419-77-0P 346420-07-3P
 346420-55-1P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (space environmentally stable polyimides and copolyimides derived from bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide)
 IT 299176-31-1P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (space environmentally stable polyimides and copolyimides derived from bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide)
 RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
 RE
 (1) Alexander, M; High Perform Polym submitted 2000
 (2) Alexander, M; High Perform Polym submitted 2000
 (3) Connell, J; High Perform Polym 2000, V12, P43 HCAPLUS
 (4) Connell, J; J Fire Sci 1993, V11, P137 HCAPLUS
 (5) Connell, J; Polym Adv Technol 1998, V9, P11 HCAPLUS
 (6) Connell, J; Polymer 1995, V36, P13 HCAPLUS
 (7) Connell, J; Polymer 1995, V36, P5 HCAPLUS
 (8) Fewell, L; J Appl Polym Sci 1990, V41, P391 HCAPLUS
 (9) Fewell, L; Polymer 1991, V32, P393 HCAPLUS
 (10) Leger, L; SAMPE Q 1987, V18, P38
 (11) Russell, D; NASA Contractor Report 2000, CR-2000-210101
 (12) Sanders, J; Unpublished results 1998
 (13) Smith, C; High Perform Polym 1991, V3, P211 HCAPLUS
 (14) Smith, J; Polymer 1994, V35, P2834 HCAPLUS
 (15) St Clair, A; Recent Advances in Polyimide Science and Technology 1987, P16
 (16) Stiegman, A; Jet Propulsion Laboratory Publication 1991, P91
 (17) Stuckey, W; Aerospace Corporation Technical Memorandum 98 (1055-04)-2 1998
 (18) Wilson, D; Polyimides 1990
 IT 299176-62-8P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (in prepn. of bis(3-aminophenyl)-3,5-di(trifluoromethyl)phenylphosphine oxide)
 RN 299176-62-8 HCAPLUS
 CN Phosphine oxide, [3,5-bis(trifluoromethyl)phenyl]diphenyl- (9CI) (CA INDEX NAME)



L46 ANSWER 2 OF 15 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:137608 HCAPLUS
DN 134:266644
TI Synthesis of new phosphonic derivatives bearing fluorinated chains
AU Gaboyard, M.; Hervaud, Y.; Boutevin, B.
CS Laboratoire de Chimie Macromoleculaire, UMR 5076, Ecole Nationale
Superieure de Chimie de Montpellier, Montpellier, 34 296, Fr.
SO Journal of Fluorine Chemistry (2001), 107(1), 5-12.
CODEN: JFLCAR; ISSN: 0022-1139
PB Elsevier Science S.A.
DT Journal
LA English
CC 35-4 (Chemistry of Synthetic High Polymers)
AB We describe various radical telomerization reactions of
chlorotrifluoroethylene (CTFE) and dialkyl hydrogen phosphonates
(HP(O)(OR)₂ R = Me, Et). Characterization by ¹H, ¹⁹F and ³¹P NMR of the
resulting telomers are detailed. For the heaviest telomers, we used
MALDI-TOF analyses to give the mass values. Parameters such as pressure,
solvent, R₀, C₀, temp. and nature of initiator have been studied in order
to optimize this reaction. Some products have been prepd. in large
quantities using special high-pressure reactors. We also succeeded in the
cleavage of phosphonic esters in order to obtain acidic structures
well-known for their adhesive properties on metals.
ST chlorotrifluoroethylene dialkyl hydrogenphosphonate radical telomerization
phosphonic ester cleavage; adhesion **lubrication**
chlorofluorinated posponate prepn
IT Telomers (polymers)
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(fluoropolymers; synthesis of new phosphonic derivs. bearing
fluorinated chains)
IT Solvents
(org.; synthesis of new phosphonic derivs. bearing fluorinated chains)
IT Telomerization
(radical; synthesis of new phosphonic derivs. bearing fluorinated
chains)
IT Hydrolysis catalysts
NMR (nuclear magnetic resonance)
Telomerization catalysts
(synthesis of new phosphonic derivs. bearing fluorinated chains)
IT Fluoropolymers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(telomers; synthesis of new phosphonic derivs. bearing fluorinated
chains)
IT 1310-73-2, Sodium hydroxide, uses 2857-97-8, Silane, bromotrimethyl-
7647-01-0, Hydrochloric acid, uses
RL: CAT (Catalyst use); USES (Uses)
(cleavage of telomer's phosphonic ester by; synthesis of new phosphonic
derivs. bearing fluorinated chains)
IT 79-38-9, Chlorotrifluoroethylene
RL: RCT (Reactant); RACT (Reactant or reagent)
(monomer; synthesis of new phosphonic derivs. bearing fluorinated
chains)
IT 75-05-8, Acetonitrile, uses 76-13-1, R113
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; synthesis of new phosphonic derivs. bearing fluorinated
chains)
IT 762-04-9, Diethylphosphonate 868-85-9, Dimethylphosphonate
RL: RCT (Reactant); RACT (Reactant or reagent)

(telogen; synthesis of new phosphonic derivs. bearing fluorinated chains)

IT 2353-89-1P
RL: SPN (Synthetic preparation); PREP (Preparation)
(telomer cleavage product; synthesis of new phosphonic derivs. bearing fluorinated chains)

IT 60575-63-5P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(telomer; synthesis of new phosphonic derivs. bearing fluorinated chains)

IT 313640-72-1P 332188-04-2P 332188-05-3P 332188-06-4P
332188-07-5P 332188-08-6P
RL: PRP (Properties); **SPN (Synthetic preparation); PREP (Preparation)**
(telomer; synthesis of new phosphonic derivs. bearing fluorinated chains)

IT 78-67-1, Azobisisobutyronitrile 94-36-0, Benzoyl peroxide, uses 110-05-4, Di-tert.-butyl peroxide
RL: CAT (Catalyst use); USES (Uses)
(telomerization catalyst; synthesis of new phosphonic derivs. bearing fluorinated chains)

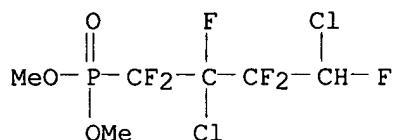
RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

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- (2) Ba-Saif, S; JACS 1990, V112, P8115 HCAPLUS
- (3) Bittles, J; US 2559754 1951 HCAPLUS
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- (8) Boutevin, B; J Appl Polym Sci 1994, V52, P449 HCAPLUS
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- (12) Christol, H; J Organometal Chem 1968, V12, P459 HCAPLUS
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- (15) Halmann, M; Analytical Chemistry of Phosphorus Compounds 1972, P181
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- (19) Inukai, K; J Org Chem 1964, V29, P224
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- (21) Machida, Y; Synth Commun 1979, V9(2), P97 HCAPLUS
- (22) McKenna, C; Tetrahedron Lett 1977, V2, P155
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- (24) Schneider, P; J Prakt Chem 1974, V316(6), P1002 HCAPLUS
- (25) Weis, C; HCAPLUS
- (26) Weis, C; EP 0310559 1989 HCAPLUS

IT **332188-07-5P 332188-08-6P**
RL: PRP (Properties); **SPN (Synthetic preparation); PREP (Preparation)**
(telomer; synthesis of new phosphonic derivs. bearing fluorinated chains)

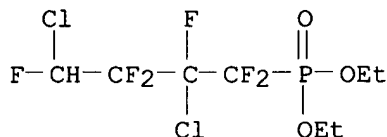
RN 332188-07-5 HCAPLUS

CN Phosphonic acid, (2,4-dichloro-1,1,2,3,3,4-hexafluorobutyl)-, dimethyl ester (9CI) (CA INDEX NAME)



RN 332188-08-6 HCAPLUS

CN Phosphonic acid, (2,4-dichloro-1,1,2,3,3,4-hexafluorobutyl)-, diethyl ester (9CI) (CA INDEX NAME)



L46 ANSWER 3 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1999:659395 HCAPLUS

DN 131:288669

TI Phosphorus compounds as corrosion inhibitors for perfluoropolyethers

IN Howell, Jon L.; Hofmann, Michael A.

PA E.I. Du Pont De Nemours and Company, USA

SO PCT Int. Appl., 33 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C07F009-12

ICS C10M137-02; C10M137-12; C10M169-04; C07F009-40; C07F009-32;
C07F009-53; C07F009-50; C07F009-46; C07F009-48; C10M169-04;
C10M107-38; C10M137-02; C10M137-12

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9951612	A1	19991014	WO 1999-US6816	19990330
	W: AU, CA, CN, JP, KR				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 6184187	B1	20010206	US 1998-56085	19980407
	CA 2327675	AA	19991014	CA 1999-2327675	19990330
	AU 9933694	A1	19991025	AU 1999-33694	19990330
	EP 1070074	A1	20010124	EP 1999-915093	19990330
	R: DE, DK, ES, FR, GB, IT, NL				
	JP 2002510697	T2	20020409	JP 2000-542333	19990330
PRAI	US 1998-56085	A	19980407		
	WO 1999-US6816	W	19990330		
AB	Novel phosphorus compds. are effective corrosion inhibitors for perfluoropolyether lubricating oils and greases, and hydraulic fluids.				
ST	phosphorus compd lubricant corrosion inhibitor; hydraulic fluid corrosion inhibitor phosphorus compd				
IT	Polyethers, uses				
	RL: MOA (Modifier or additive use); USES (Uses)				
	(fluorine-contg.; phosphorus compds. as corrosion inhibitors for perfluoropolyethers)				
IT	Polyethers, uses				

applicant

RL: MOA (Modifier or additive use); USES (Uses)
(perfluoro; phosphorus compds. as corrosion inhibitors for
perfluoropolyethers)

IT Corrosion inhibitors
Hydraulic fluids
Lubricating greases
Lubricating oil additives
Lubricating oils
(phosphorus compds. as corrosion inhibitors for perfluoropolyethers)

IT Fluoropolymers, uses
Fluoropolymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polyether-; phosphorus compds. as corrosion inhibitors for
perfluoropolyethers)

IT 90317-77-4P 246154-90-5P 246180-79-0P 246180-81-4P
246180-82-5P 246180-83-6P 246180-84-7P
246180-85-8P
RL: IMF (Industrial manufacture); PREP (Preparation)
(phosphorus compds. as corrosion inhibitors for perfluoropolyethers)

IT 14620-81-6P 146185-22-0P 246180-78-9P 246180-80-3P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP
(Preparation); RACT (Reactant or reagent)
(phosphorus compds. as corrosion inhibitors for perfluoropolyethers)

IT 67-63-0, Isopropyl alcohol, miscellaneous 471-34-1, Calcium carbonate,
miscellaneous 1344-28-1, Aluminum oxide (Al₂O₃), miscellaneous
7647-01-0, Hydrochloric acid, miscellaneous 7664-39-3, Hydrogen
fluoride, miscellaneous 16940-66-2, Sodium borohydride
RL: MSC (Miscellaneous)
(phosphorus compds. as corrosion inhibitors for perfluoropolyethers)

IT 67-56-1, Methanol, reactions 67-64-1, 2-Propanone, reactions 76-13-1,
FREON 113 108-88-3, Toluene, reactions 110-86-1, Pyridine, reactions
121-44-8, reactions 647-42-7, 1H,1H,2H,2H-Perfluorooctanol 770-12-7
771-61-9, Pentafluorophenol 772-79-2, 4-Chlorophenyl dichlorophosphate
777-52-6, 4-Nitrophenyl phosphorodichloridate 824-72-6, Phenylphosphonic
dichloride 2062-98-8 2641-34-1 7719-12-2, Phosphorus trichloride
10025-87-3, Phosphorus oxychloride 12125-02-9, Ammonium chloride
(NH₄)Cl, reactions 27639-98-1 37382-64-2 99752-24-6, Fomblin Z-DOL
4000 107852-51-7, FOMBLIN Z-Dol 138495-42-8, VERTREL XF 143243-64-5,
Fomblin Z-DOL TX 221377-04-4, Galden MF 402
RL: RCT (Reactant); RACT (Reactant or reagent)
(phosphorus compds. as corrosion inhibitors for perfluoropolyethers)

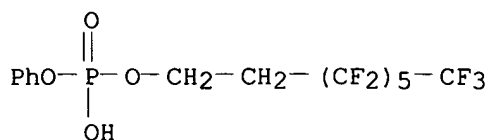
RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE
(1) Borecki, W; US 3306855 A 1967 HCAPLUS
(2) Paciorek, K; US 5550277 A 1996 HCAPLUS
(3) Pavlenko, N; JOURNAL OF GENERAL CHEMISTRY USSR 1989, V59(3), P474
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(7) Skehan, J; US 3367868 A 1968 HCAPLUS

IT 246154-90-5P 246180-83-6P 246180-84-7P
246180-85-8P
RL: IMF (Industrial manufacture); PREP (Preparation)
(phosphorus compds. as corrosion inhibitors for perfluoropolyethers)

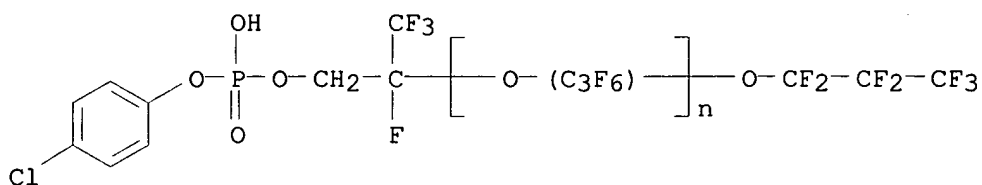
RN 246154-90-5 HCAPLUS

CN Phosphoric acid, monophenyl mono(3,3,4,4,5,5,6,6,7,7,8,8,8-
tridecafluorooctyl) ester (9CI) (CA INDEX NAME)



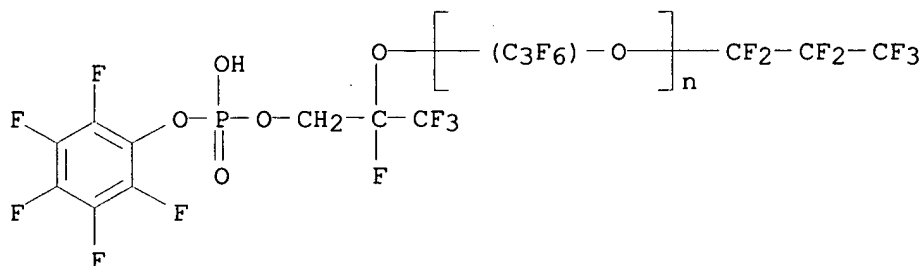
RN 246180-83-6 HCAPLUS

CN Poly[oxy[trifluoro(trifluoromethyl)-1,2-ethanediyl]], .alpha.-[1-[[[(4-chlorophenoxy)hydroxyphosphinyl]oxy]methyl]-1,2,2,2-tetrafluoroethyl]-.omega.-(heptafluoropropoxy)- (9CI) (CA INDEX NAME)



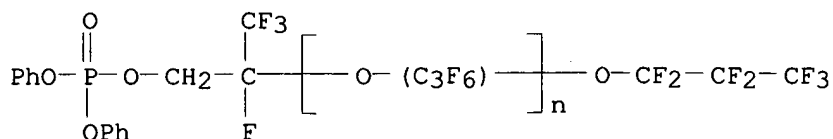
RN 246180-84-7 HCAPLUS

CN Poly[oxy[trifluoro(trifluoromethyl)-1,2-ethanediyl]], .alpha.-(heptafluoropropyl)-.omega.-[1,2,2,2-tetrafluoro-1-[[[hydroxy(pentafluorophenoxy)phosphinyl]oxy]methyl]ethoxy]- (9CI) (CA INDEX NAME)



RN 246180-85-8 HCAPLUS

CN Poly[oxy[trifluoro(trifluoromethyl)-1,2-ethanediyl]], .alpha.-[1-[[[(diphenoxyphosphinyl)oxy]methyl]-1,2,2,2-tetrafluoroethyl]-.omega.-(heptafluoropropoxy)- (9CI) (CA INDEX NAME)



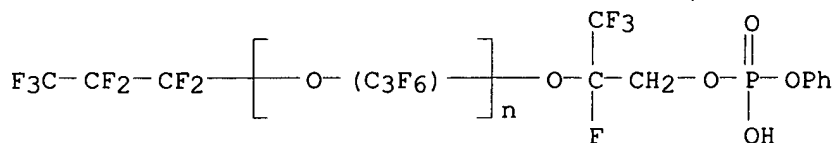
IT 246180-78-9P 246180-80-3P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(phosphorus compds. as corrosion inhibitors for perfluoropolyethers)

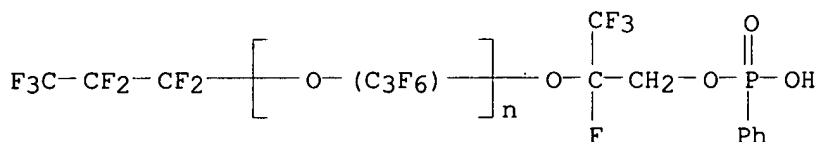
RN 246180-78-9 HCAPLUS

CN Poly[oxy(trifluoro(trifluoromethyl)-1,2-ethanediyl)], .alpha.-
(heptafluoropropyl)-.omega.-[1,2,2,2-tetrafluoro-1-
[[(hydroxyphenoxyphosphinyl)oxy]methyl]ethoxy]- (9CI) (CA INDEX NAME)



RN 246180-80-3 HCAPLUS

CN Poly[oxy(trifluoro(trifluoromethyl)-1,2-ethanediyl)], .alpha.-
(heptafluoropropyl)-.omega.-[1,2,2,2-tetrafluoro-1-
[[(hydroxyphenylphosphinyl)oxy]methyl]ethoxy]- (9CI) (CA INDEX NAME)



L46 ANSWER 4 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1998:65477 HCAPLUS

DN 128:108515

TI Preparation of phosphorus compounds as **lubricating** materials for
magnetic recording medium

IN Furuya, Takahiro; Miyata, Kazushi

PA Hitachi Maxell, Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C07F009-6571

ICS C10M105-74; G11B005-71; C10N040-18

CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

Section cross-reference(s): 29

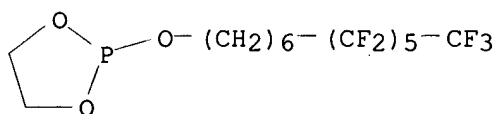
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10017584	A2	19980120	JP 1996-188897	19960628
OS	MARPAT 128:108515				
GI					

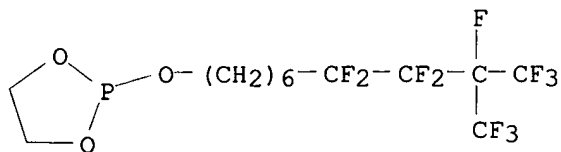
* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The title compds. [I-IV; Y = P, P:O; R = (fluoro)hydrocarbyl; X = O, NR1;
R1 = H, hydrocarbyl] are prepd. I-IV are useful as **lubricating**
materials for magnetic recording medium, which are strong magnetic metal
films contg. C, SiO2, zirconium oxide and chromium oxide. Thus,
F(CF2)6(CH2)6OH was reacted with 2-chloro-1,3,2-dioxaphospholane in the
presence of Et3N in THF to give I [Y = P, X = O, R = F(CF2)6(CH2)6].

- ST phosphorus compd prepn **lubricating** agent; magnetic recording material phosphorus compd prepn
- IT Lubricants
Magnetic recording materials
(prepn. of phosphorus compds. as **lubricating** materials for magnetic recording medium)
- IT 52754-62-8P 201217-07-4P 201217-08-5P
201217-09-6P 201217-10-9P 201217-11-0P
201217-12-1P 201217-13-2P 201217-14-3P
201217-15-4P 201217-16-5P 201217-17-6P
201217-18-7P 201217-19-8P 201217-20-1P
201217-22-3P 201217-26-7P
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(prepn. of phosphorus compds. as **lubricating** materials for magnetic recording medium)
- IT 112-92-5, 1-Octadecanol 307-29-9 647-42-7 754-96-1 822-39-9,
2-Chloro-1,3,2-dioxaphospholane 1499-17-8 1641-40-3 6609-64-9,
2-Chloro-1,3,2-dioxaphospholane-2-oxide 14620-81-6 161981-35-7
201154-94-1 201217-24-5 201217-25-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. of phosphorus compds. as **lubricating** materials for magnetic recording medium)
- IT 201217-07-4P 201217-08-5P 201217-09-6P
201217-10-9P 201217-11-0P 201217-12-1P
201217-13-2P 201217-14-3P 201217-15-4P
201217-16-5P 201217-17-6P 201217-19-8P
201217-20-1P 201217-22-3P 201217-26-7P
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(prepn. of phosphorus compds. as **lubricating** materials for magnetic recording medium)
- RN 201217-07-4 HCAPLUS
- CN 1,3,2-Dioxaphospholane, 2-[(7,7,8,8,9,9,10,10,11,11,12,12,12-tridecafluorododecyl)oxy]- (9CI) (CA INDEX NAME)

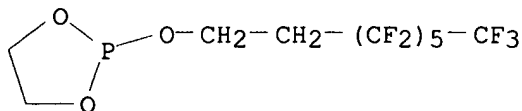


- RN 201217-08-5 HCAPLUS
- CN 1,3,2-Dioxaphospholane, 2-[[7,7,8,8,9,10,10,10-octafluoro-9-(trifluoromethyl)decyl]oxy]- (9CI) (CA INDEX NAME)



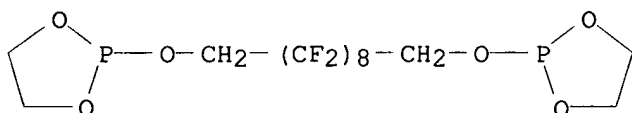
- RN 201217-09-6 HCAPLUS
- CN 1,3,2-Dioxaphospholane, 2-[(3,3,4,4,5,5,6,6,7,7,8,8,8-

tridecafluorooctyl)oxy]- (9CI) (CA INDEX NAME)



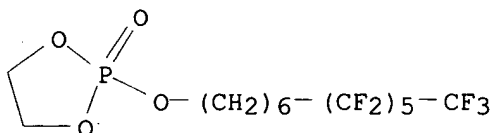
RN 201217-10-9 HCAPLUS

CN 1,3,2-Dioxaphospholane, 2,2'-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluoro-1,10-decanediyl)bis(oxy)]bis- (9CI) (CA INDEX NAME)



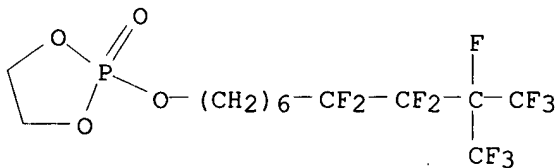
RN 201217-11-0 HCAPLUS

CN 1,3,2-Dioxaphospholane, 2-[(7,7,8,8,9,9,10,10,11,11,12,12,12-tridecafluorododecyl)oxy]-, 2-oxide (9CI) (CA INDEX NAME)



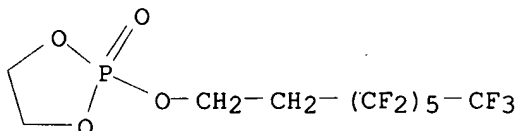
RN 201217-12-1 HCAPLUS

CN 1,3,2-Dioxaphospholane, 2-[[7,7,8,8,9,10,10,10-octafluoro-9-(trifluoromethyl)decyl]oxy]-, 2-oxide (9CI) (CA INDEX NAME)



RN 201217-13-2 HCAPLUS

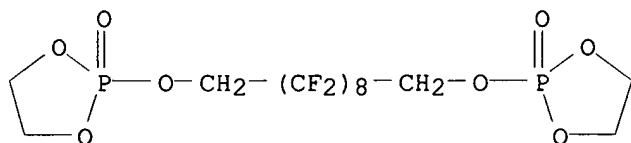
CN 1,3,2-Dioxaphospholane, 2-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy]-, 2-oxide (9CI) (CA INDEX NAME)



RN 201217-14-3 HCAPLUS

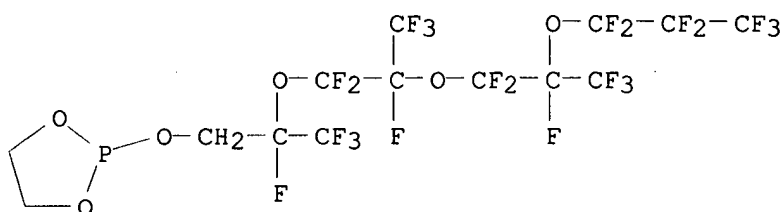
CN 1,3,2-Dioxaphospholane, 2,2'-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluoro-1,10-decanediyl)bis(oxy)]bis-, 2,2'-dioxide (9CI) (CA INDEX NAME)

INDEX NAME)



RN 201217-15-4 HCAPLUS

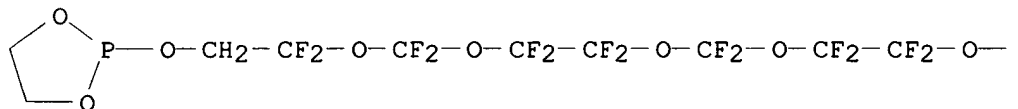
CN 1,3,2-Dioxaphospholane, 2-[2,3,3,3-tetrafluoro-2-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-(heptafluoropropoxy)propoxy]propoxy]propoxy]-(9CI) (CA INDEX NAME)



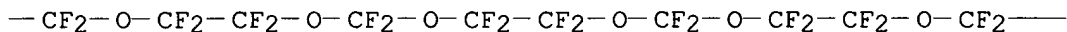
RN 201217-16-5 HCAPLUS

CN 1,3,2-Dioxaphospholane, 2,2'-[(2,2,4,4,6,6,7,7,9,9,11,11,12,12,14,14,16,16,17,17,19,19,21,21,22,22,24,24,26,26,27,27,29,29,31,31,32,32,34,34,36,36,37,37,39,39,41,41,42,42,44,44,46,46,47,47,49,49,51,51,52,52,54,54-tetrahexacontafluoro-3,5,8,10,13,15,18,20,23,25,28,30,33,35,38,40,43,45,48,50,53-heneicosaoxapentapentacontane-1,55-diyl)bis(oxy)]bis- (9CI) (CA INDEX NAME)

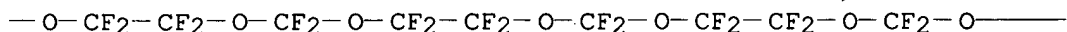
PAGE 1-A



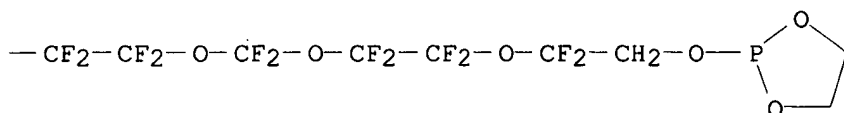
PAGE 1-B



PAGE 1-C



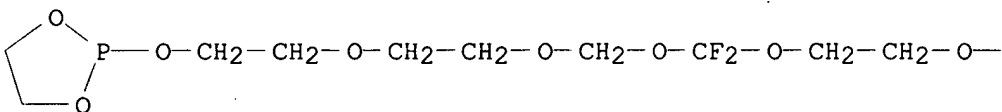
PAGE 1-D



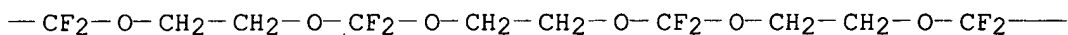
RN 201217-17-6 HCAPLUS

CN 1,3,2-Dioxaphospholane, 2,2'-[(9,9,14,14,19,19,24,24,29,29,34,34,39,39,44,44,49,49,54,54-eicosafuoro-3,6,8,10,13,15,18,20,23,25,28,30,33,35,38,40,43,45,48,50,53,55,58,60,63-pentacosaoxapentaheptacontane-1,65-diyl)bis(oxy)]bis- (9CI) (CA INDEX NAME)

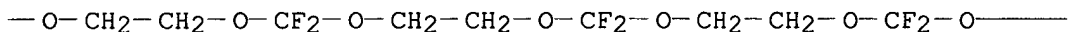
PAGE 1-A



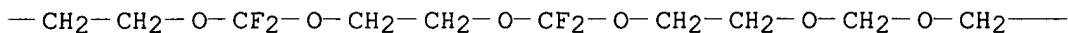
PAGE 1-B



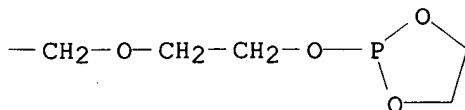
PAGE 1-C



PAGE 1-D

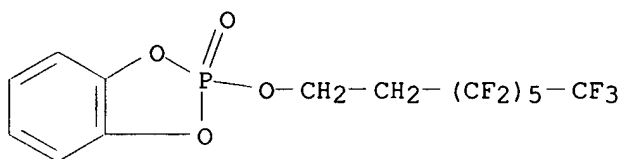


PAGE 1-E



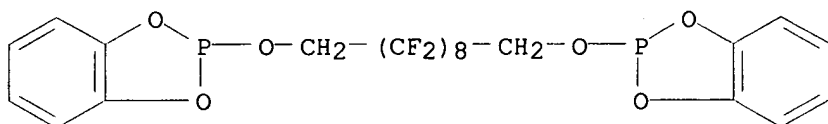
RN 201217-19-8 HCAPLUS

CN 1,3,2-Benzodioxaphosphole, 2-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy]-, 2-oxide (9CI) (CA INDEX NAME)



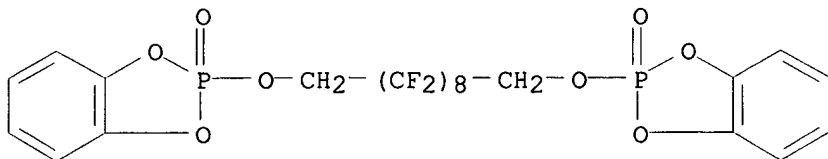
RN 201217-20-1 HCAPLUS

CN 1,3,2-Benzodioxaphosphole, 2,2'-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluoro-1,10-decanediyl)bis(oxy)]bis- (9CI) (CA INDEX NAME)



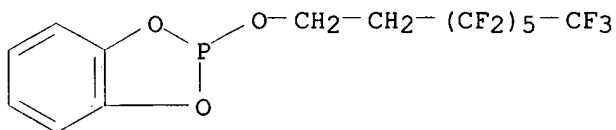
RN 201217-22-3 HCAPLUS

CN 1,3,2-Benzodioxaphosphole, 2,2'-[(2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluoro-1,10-decanediyl)bis(oxy)]bis-, 2,2'-dioxide (9CI) (CA INDEX NAME)



RN 201217-26-7 HCAPLUS

CN 1,3,2-Benzodioxaphosphole, 2-[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)oxy]- (9CI) (CA INDEX NAME)



L46 ANSWER 5 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1997:9359 HCAPLUS

DN 126:39701

TI Electrophotographic carrier, its manufacture, two-component developer, and image formation method

IN Umeno, Tomoyasu

PA Konishiroku Photo Ind, Japan

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03G009-113

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ICS G03G021-10

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

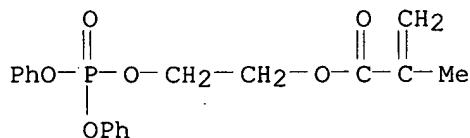
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08262806	A2	19961011	JP 1995-64329	19950323
AB	The electrophotog. carrier comprises a core and a coating layer contg. a copolymer of a F-contg. monomer with CH ₂ :CR ₁ CO ₂ CH ₂ CHR ₂ OP(O)(OR ₃)(OR ₄) (R ₁ = H, Cl-3 alkyl; R ₂ = H, org. group contg. H and C; R ₃ -4 = alkyl, Ph). The carrier is manufd. by coating at 50-150.degree.. The two-component developer is composed of a toner and the carrier claimed above. A method for electrophotog. image formation by using the two-component developer is also claimed. The carrier shows good wear resistance and adhesion between the core and the coating layer, and provides developer with high printing durability.				
ST	electrophotog. developer carrier fluoropolymer; acryloxyethyl phosphate copolymer electrophotog carrier				
IT	Electrophotographic carriers (electrophotog. carrier coated with copolymers of fluoromonomers with acryloxyethyl phosphates for two-component developer therefrom)				
IT	Fluoropolymers, preparation RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (electrophotog. carrier coated with copolymers of fluoromonomers with acryloxyethyl phosphates for two-component developer therefrom)				
IT	Electrophotographic developers (two-component; electrophotog. carrier coated with copolymers of fluoromonomers with acryloxyethyl phosphates for two-component developer therefrom)				
IT	184826-91-3P	184826-92-4P	184826-93-5P	184826-95-7P	
	184826-98-0P RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (electrophotog. carrier coated with copolymers of fluoromonomers with acryloxyethyl phosphates for two-component developer therefrom)				
IT	184826-91-3P RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (electrophotog. carrier coated with copolymers of fluoromonomers with acryloxyethyl phosphates for two-component developer therefrom)				
RN	184826-91-3 HCAPLUS				
CN	2-Propenoic acid, 2-methyl-, 2-[(diphenoxyphosphinyl)oxy]ethyl ester, polymer with 1,1-difluoroethene and 1,1,2,3,3,3-hexafluoro-1-propene (9CI) (CA INDEX NAME)				

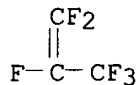
CM 1

CRN 16069-23-1

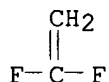
CMF C18 H19 O6 P



CM 2

CRN 116-15-4
CMF C3 F6

CM 3

CRN 75-38-7
CMF C2 H2 F2

L46 ANSWER 6 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1996:546639 HCAPLUS

DN 125:248104

TI Perfluoroalkyl and perfluoroalkyl ether substituted aromatic phosphates, phosphonates and related compositions

IN Paciorek, Kazimiera J. L.; Lin, Wen-huey; Masuda, Steven R.; Nakahara, James H.

PA USA

SO U.S., 6 pp.

CODEN: USXXAM

DT Patent

LA English

IC ICM C07F009-09

ICS C07F009-32; C07F009-40

NCL 558194000

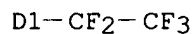
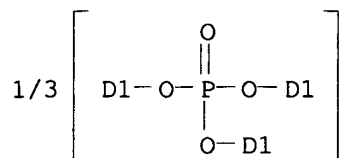
CC 29-7 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 51, 72

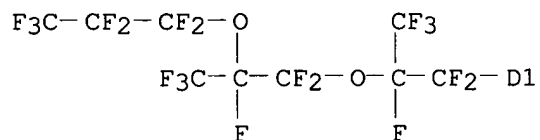
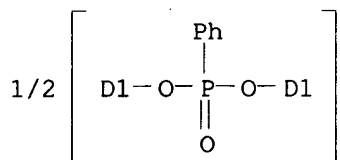
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5550277	A	19960827	US 1995-375954	19950119
AB	Perfluoroalkyl and perfluoroalkyl ether substituted arom. phosphates, phosphonates and related compns. prepd. by reaction of perfluoroalkyl or perfluoroalkyl ether substituted phenols with mono- and dihalophosphite and primary and secondary phosphoryl halides are disclosed. These materials are useful as antioxidant, anticorrosion, antirust, and lubricity enhancing agents for perfluoropolyalkyl ether fluids. Thus, lithiation of C3F7[OCF(CF3)CF2]2C6H4Br with BuLi in Et2O followed by sequential treatment with B(OMe)3 and H2O2/AcOH gave 69% C3F7[OCF(CF3)CF2]2C6H4OH (I). Phosphonylation of I with PhOP(O)Cl2 in the presence of Freon 113/Et3N/C6H6 gave 79% [C3F7(OCF(CF3)CF2)2C6H4O]2P(O)OPh. Some of the compds. prepd. were tested for inhibition of oxidn. of Krytox 143AC, M-50 steel alloy, etc.				
ST	perfluoroalkyl ether arom phosphate phosphonate prepn; antioxidant perfluoroalkyl ether arom phosphate phosphonate; anticorrosion perfluoroalkyl ether arom phosphate phosphonate; antirust perfluoroalkyl				

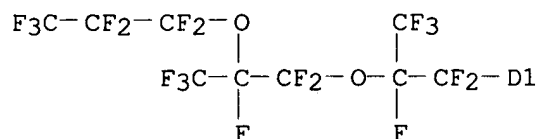
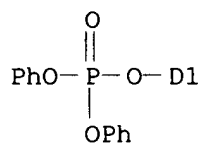
ether arom phosphate phosphonate
IT Corrosion prevention
(perfluoroalkyl and perfluoroalkyl ether substituted arom. phosphates, phosphonates)
IT **Lubricating grease** additives
(antioxidants, perfluoroalkyl and perfluoroalkyl ether substituted arom. phosphates, phosphonates)
IT 507-63-1, Perfluorooctyl iodide
RL: RCT (Reactant); RACT (Reactant or reagent)
(coupling reaction with iodophenol)
IT 540-38-5, 4-Iodophenol
RL: RCT (Reactant); RACT (Reactant or reagent)
(coupling reaction with perfluorooctyl iodide)
IT 181791-28-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydroxylation of)
IT 181791-31-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(phosphonylation of)
IT 770-12-7, Dichlorophenoxyphosphine oxide 824-72-6,
Dichlorophenylphosphine oxide 1499-21-4, Chlorodiphenylphosphine oxide
10025-87-3, Phosphoryl chloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(phosphonylation of hydroxyperfluoroalkyl ether with)
IT 181791-29-7P 181791-30-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and phosphonylation of)
IT 181791-32-2P 181791-33-3P 181791-34-4P
181791-35-5P 181829-64-1P 181829-65-2P
RL: PRP (Properties); SPN (Synthetic preparation); TEM
(Technical or engineered material use); PREP (Preparation); USES
(Uses)
(prepn. as antioxidant, anticorrosion, antirust, and lubricity enhancing agent)
IT 181791-32-2P 181791-33-3P 181791-34-4P
181791-35-5P 181829-64-1P 181829-65-2P
RL: PRP (Properties); SPN (Synthetic preparation); TEM
(Technical or engineered material use); PREP (Preparation); USES
(Uses)
(prepn. as antioxidant, anticorrosion, antirust, and lubricity enhancing agent)
RN 181791-32-2 HCAPLUS
CN Phenol, (pentafluoroethyl)-, phosphate (3:1) (9CI) (CA INDEX NAME)



RN 181791-33-3 HCAPLUS
 CN Phosphonic acid, phenyl-, bis[[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-(heptafluoropropoxy)propoxy]propyl]phenyl] ester (9CI) (CA INDEX NAME)



RN 181791-34-4 HCAPLUS
 CN Phosphoric acid, [1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-(heptafluoropropoxy)propoxy]propyl]phenyl diphenyl ester (9CI) (CA INDEX NAME)

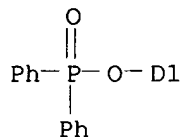


RN 181791-35-5 HCAPLUS

CN Phosphinic acid, diphenyl-, (heptadecafluorooctyl)phenyl ester (9CI) (CA INDEX NAME)

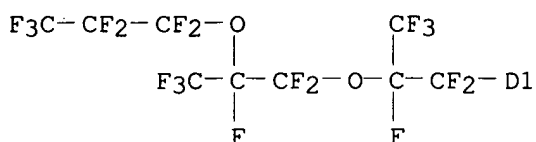
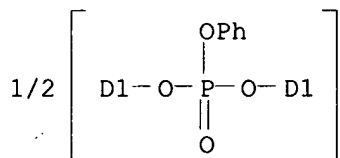


D1- (CF₂)₇-CF₃



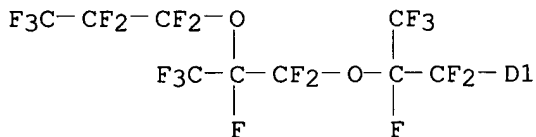
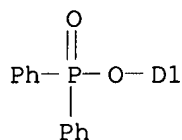
RN 181829-64-1 HCAPLUS

CN Phosphoric acid, bis[[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-(heptafluoropropoxy)propoxy]propyl]phenyl] phenyl ester (9CI) (CA INDEX NAME)



RN 181829-65-2 HCAPLUS

CN Phosphinic acid, diphenyl-, [1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-(heptafluoropropoxy)propoxy]propyl]phenyl ester (9CI) (CA INDEX NAME)



L46 ANSWER 7 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1995:695868 HCAPLUS

DN 123:111550

TI Fluorinated hydrocarbon compound, process for producing the same, and refrigerator oil and magnetic recording medium lubricant

IN Ide, Satoshi; Fujiwara, Katsuki; Yamana, Masayuki; Honda, Yoshitaka; Yamamoto, Ikuo; Yamaguchi, Fumihiko; Seki, Eiji; Otsuka, Tatsuya; Ishida, Satoshi

PA Japan

KATHLEEN FULLER EIC 1700/LAW LIBRARY 308-4290

SO PCT Int. Appl., 220 pp.

CODEN: PIXXD2

DT Patent

LA Japanese

IC ICM C07C043-17

ICS C07C043-12; C07C323-05; C07C323-14; C10M105-54; C10M105-72;
C10M107-38; C10M107-46; C08G065-32; G11B005-71

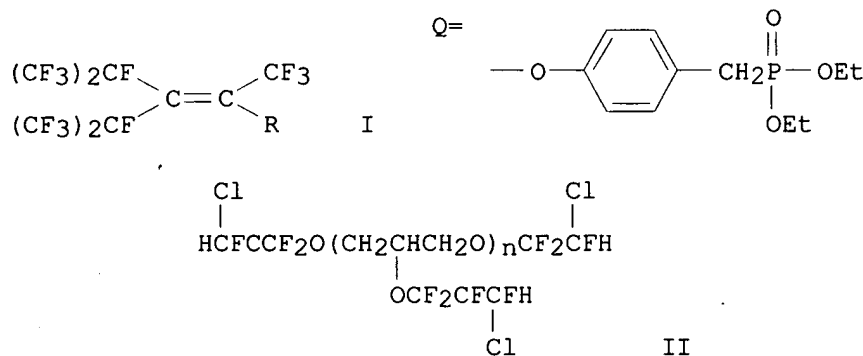
ICI C10N040-30, C10N040-14, C10N040-18

CC 23-9 (Aliphatic Compounds)

Section cross-reference(s): 42, 45, 77

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9417023	A1	19940804	WO 1994-JP84	19940121
	W: AU, BR, CA, CN, JP, KR, RU, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2154453	AA	19940804	CA 1994-2154453	19940121
	AU 9458658	A1	19940815	AU 1994-58658	19940121
	AU 688300	B2	19980312		
	EP 677504	A1	19951018	EP 1994-904753	19940121
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	BR 9406760	A	19960305	BR 1994-6760	19940121
	CN 1118156	A	19960306	CN 1994-191263	19940121
	EP 911312	A1	19990428	EP 1998-123495	19940121
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE				
	RU 2145592	C1	20000220	RU 1995-117102	19940121
	US 6019909	A	20000201	US 1995-492041	19950721
PRAI	JP 1993-9035	U	19930122		
	EP 1994-904753	A3	19940121		
	WO 1994-JP84	W	19940121		
OS	CASREACT 123:111550; MARPAT 123:111550				
GI					



AB A novel fluorinated hydrocarbon compd. contg. an oxygen or sulfur atom in its mol., e.g., R1R3C:CR2XR4 (R1, R2, R3 = F, partially or completely fluorinated C1-30 linear or branched alkyl or alkenyl optionally substituted by halogens other than F; R4 = C1-30 linear or branched alkyl or alkenyl or poly ether optionally substituted by halogens other than F; X = O, S) is prepd. by the nucleophilic reaction of a fluorine compd., e.g., R1R3C:CR2F (R1 - R3 = same as above) with a hydrocarbon compd., e.g., H-XR4 (R4 = same as above). This compd. is useful as a lubricant for various applications and particularly excellent as an oil for refrigerators wherein hydrochlorofluorocarbon is used as the refrigerant

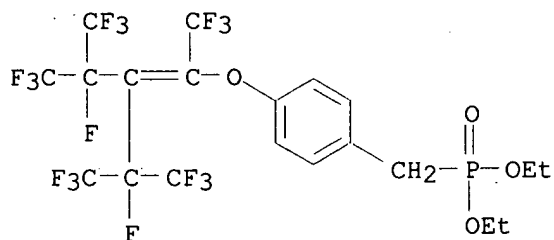
and as a magnetic recording medium lubricant. Thus, a mixt. of perfluorononene (I; R = F), phenol, and DMF was treated with Et₃N at .ltoreq.25.degree. to give 71% perfluorononenyl Ph ether I (R = OPh) which was alkylated with chloromethyl Me ether in fuming H₂SO₄ at 15.degree. to give 71% p-perfluorononyloxybenzyl chloride I (R = p-chloromethylphenoxy). The latter benzyl chloride was condensed with (EtO)₃P(O) at 150.degree. to give 84% di-Et p-perfluorononyloxybenzylphosphonate I (R = Q). A magnetic tape prepd. by coating a polyethylene phthalate film with a magnetic coating contg. title compd. (II) as a **lubricating** oil showed coeff. of **friction** 0.22 vs. 0.40 for a magnetic tape contg. F(CF₂CF₂CF₂O)_nCF₂CF₃.

- ST fluorinated hydrocarbon prepn refrigerator oil; magnetic recording medium lubricant fluorinated hydrocarbon; perfluoroalkene etherification alc thioalc
- IT Epoxides
RL: RCT (Reactant); RACT (Reactant or reagent)
(perfluoroalkene epoxides; prepn. of fluorinated hydrocarbon compds. by etherification of perfluoroalkenes or epoxides with (thio)alcs.)
- IT Lubricants
Refrigerating apparatus
(prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT Hydrocarbon oils
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT Etherification
(prepn. of fluorinated hydrocarbon compds. by etherification of perfluoroalkenes or epoxides with (thio)alcs.)
- IT Perfluorocarbons
RL: RCT (Reactant); RACT (Reactant or reagent)
(alkenyl, prepn. of fluorinated hydrocarbon compds. by etherification of perfluoroalkenes or epoxides with (thio)alcs.)
- IT Recording materials
(magnetic, prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT Coating materials
RL: DEV (Device component use); USES (Uses)
(magnetic, prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 107-30-2, Chloromethyl methyl ether
RL: RCT (Reactant); RACT (Reactant or reagent)
(alkylation of perfluorononenyl Ph ether in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 78-40-0, Triethyl phosphate
RL: RCT (Reactant); RACT (Reactant or reagent)
(condensation with p-perfluorononyloxybenzyl chloride in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 107-07-3, 2-Chloroethanol, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with (perfluoromethyloctyl)epoxypropane in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 106-89-8, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with (perfluorooctyl)ethanol in prepn. of fluorinated

- hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 56-81-5, 1,2,3-Propanetriol, reactions 115-77-5, reactions 629-11-8, 1,6-Hexanediol 59113-36-9, Diglycerin
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with chlorotrifluoroethylene in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 678-39-7, 2-(Perfluorooctyl)ethanol
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with epichlorohydrin in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 36311-34-9, Isopalmityl alcohol
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with hexafluoroacetone in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 52655-10-4, Isoeicosanol
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with hexafluoropropylene dimer in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 25190-06-1
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with hexafluoropropylene trimer in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 1584-03-8 2070-70-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with isoeicosanyl alc. in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 75-56-9D, fluoroalkyl derivs.
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with isomyristyl alc. in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 684-16-2, Hexafluoroacetone
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with isopalmityl alc. in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 165337-60-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with isostearyl alc. in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 116-15-4
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with neopentyl glycol in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 38565-53-6, 3-Perfluorooctyl-1,2-epoxypropane
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with oleyl alc. in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 79-38-9, Chlorotrifluoroethylene 116-14-3, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with pentaerythritol in prepn. of fluorinated

- hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 98786-51-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with perfluoroisododecene epoxide in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 107-21-1, 1,2-Ethanediol, reactions 108-95-2, Phenol, reactions 112-92-5, 1-Octadecanol 25322-69-4 36400-98-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with perfluorononene in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 143-28-2, Oleyl alcohol
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with perfluorooctylepoxypropane in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 2426-08-6 41925-33-1, 3-Perfluoro(7-methyloctyl)-1,2-epoxypropane
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with perfluorooctylethanol in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 30320-27-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with phenol in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 799-34-8 165318-17-2, 3-(Perfluoroisooctyl)-1,2-epoxypropane
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with polypropylene glycol in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 77-85-0, Trimethylolethane 77-99-6 126-30-7 626-89-1, Isohexanol 25618-55-7, Polyglycerin
RL: RCT (Reactant); RACT (Reactant or reagent)
(etherification with tetrafluoroethylene in prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT 757-15-3P 1893-53-4P 13919-86-3P 54117-34-9DP, fluoroalkyl derivs. 54295-89-5P 66432-85-7P 102304-92-7P 138828-10-1P 138828-11-2P 165317-93-1P **165317-94-2P** 165317-95-3P 165317-96-4P 165317-97-5P 165317-98-6P 165317-99-7P 165318-00-3P 165318-01-4P 165318-02-5P 165318-03-6P 165318-04-7P 165318-05-8P 165318-06-9P 165318-07-0P 165318-08-1P 165318-09-2P 165318-10-5P 165318-12-7P 165318-13-8P 165318-14-9P 165318-15-0P 165318-16-1P 165318-18-3P 165318-19-4P 165337-51-9P 165337-58-6P 165337-61-1P 165337-62-2P 165446-03-7P 165446-04-8P 165446-05-9P 165524-24-3P 165524-25-4P 165621-33-0P
RL: **IMF (Industrial manufacture)**; MOA (Modifier or additive use); **SPN (Synthetic preparation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- IT **165317-94-2P**
RL: **IMF (Industrial manufacture)**; MOA (Modifier or additive use); **SPN (Synthetic preparation)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)
(prepn. of fluorinated hydrocarbon compds. as refrigerator oils and magnetic recording medium lubricants)
- RN 165317-94-2 HCAPLUS

CN Phosphonic acid, [[4-[[[3,4,4,4-tetrafluoro-2-[1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl]-1,3-bis(trifluoromethyl)-1-butenyl]oxy]phenyl]methyl]-, diethyl ester (9CI) (CA INDEX NAME)



L46 ANSWER 8 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1995:420562 HCAPLUS

DN 122:243935

TI Lubricity additives for high temperature lubricants

IN Nader, Bassam S.

PA Dow Chemical Co., USA

SO U.S., 6 pp.

CODEN: USXXAM

DT Patent

LA English

IC ICM C10M137-00

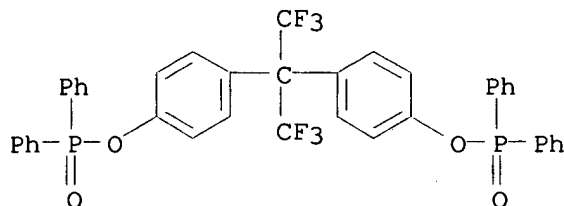
NCL 252046600

CC 51-8 (Fossil Fuels, Derivatives, and Related Products)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5387353	A	19950207	US 1993-146564	19931102
OS	MARPAT 122:243935				
AB	Compsn. useful for lubricating aircraft turbines comprises (a) a lubricating fluid base stock and (b) a phosphorous-contg. compd. including aryl diarenephosphinates, diaryl arenephosphonates and arenephosphonothioates.				
ST	lubricity additive high temp lubricant				
IT	Lubricating oil additives (aircraft turbine, lubricity; phosphorous-contg. compds.)				
IT	Lubricating oil additives (antiwear, aircraft turbine; phosphorous-contg. compds.)				
IT	21567-18-0P, 4-(4-Chlorophenoxy)phenol RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent) (in prepn. of lubricity additives for high temp. lubricants)				
IT	139701-95-4P	139701-97-6P	139701-98-7P	139701-99-8P	162510-63-6P
	162510-64-7P	162510-65-8P	162510-66-9P	162510-67-0P	
	162510-68-1P	162510-69-2P	162510-70-5P		
	RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses) (lubricity additives for high temp. lubricants)				
IT	162510-68-1P RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses) (lubricity additives for high temp. lubricants)				
RN	162510-68-1 HCAPLUS				
CN	Phosphinic acid, diphenyl-, [2,2,2-trifluoro-1-				

(trifluoromethyl)ethylidene]di-4,1-phenylene ester (9CI) (CA INDEX NAME)



L46 ANSWER 9 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1984:552079 HCAPLUS

DN 101:152079

TI Perfluoroalkylether substituted phenyl phosphines

IN Tamborski, Christ; Snyder, Carl E., Jr.; Christian, John B.

PA United States Dept. of the Air Force, USA

SO U.S., 4 pp.

CODEN: USXXAM

DT Patent

LA English

IC C07F009-52; C07F009-50

NCL 568013000

CC 29-7 (Organometallic and Organometalloidal Compounds)

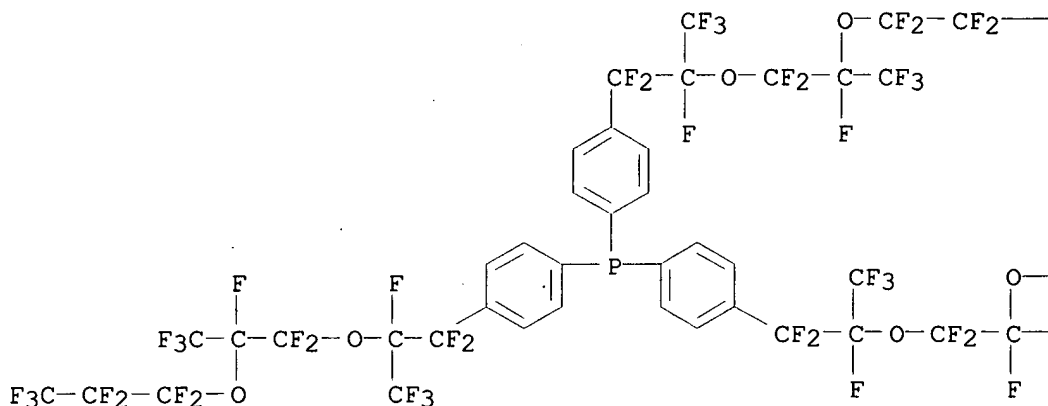
Section cross-reference(s): 51

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4454349	A	19840612	US 1982-418115	19820914
AB	Phosphines (RCF2C6H4)3P (R = perfluoroalkyl ether) were prepd. as corrosion and oxidn. inhibitors for engine oils, hydraulic fluids, and greases (no data). Thus p-Br2C6H4 was lithiated and treated with R1CO2Et [R1 = F3CCF2CF2OCF(CF3)CF2OCF(CF3)] to give 83% 4-BrC6H4COR1, which underwent reductive fluorination with HF-SF4 to give 80% 4-BrC6H4CF2R1. The last was lithiated and treated with PCl3 to give P(C6H4CF2R1-4)3 with 86% yield.				
ST	perfluoroalkoxyalkylphenylphosphine antioxidant anticorrosive; fluoroalkoxyalkylphenylphosphine antioxidant anticorrosive; phosphine perfluoroalkoxyalkylphenyl antioxidant anticorrosive				
IT	Lubricating grease additives Lubricating oil additives (antioxidants, perfluoroalkyl ether substituted phenylphosphines)				
IT	92179-89-0				
	RL: RCT (Reactant) (bromination of)				
IT	106-37-6				
	RL: RCT (Reactant) (lithiation and esterification of, with perfluorinated ester)				
IT	92179-88-9	92179-90-3			
	RL: RCT (Reactant) (lithiation and reaction of, with phosphorus trichloride)				
IT	67727-74-6P				
	RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation) (prepn. and reductive fluorination of)				
IT	86702-11-6P	92179-91-4P			
	RL: SPN (Synthetic preparation); PREP (Preparation) (prepn. of)				
IT	76145-88-5				

RL: RCT (Reactant)
 (reaction of, with dibromobenzene)
 IT 7783-60-0
 RL: RCT (Reactant)
 (reductive fluorination by hydrogen fluoride and, of perfluoro Ph
 ketone)
 IT 86702-11-6P 92179-91-4P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)
 RN 86702-11-6 HCAPLUS
 CN Phosphine, tris[4-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-
 (heptafluoropropoxy)propoxy]propyl]phenyl]- (9CI) (CA INDEX NAME)

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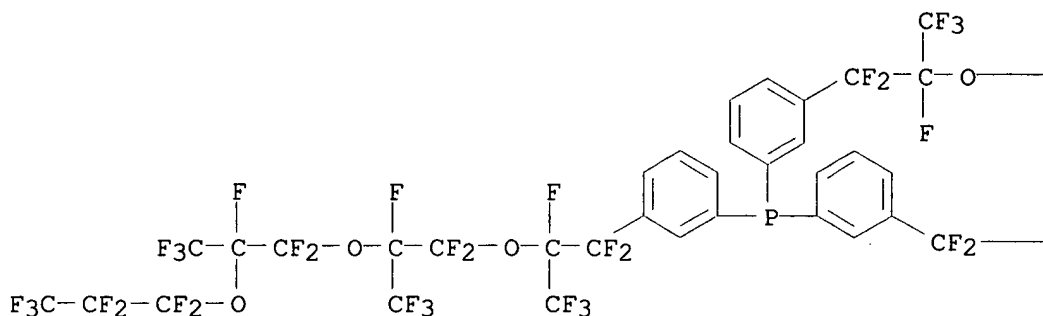


PAGE 1-B

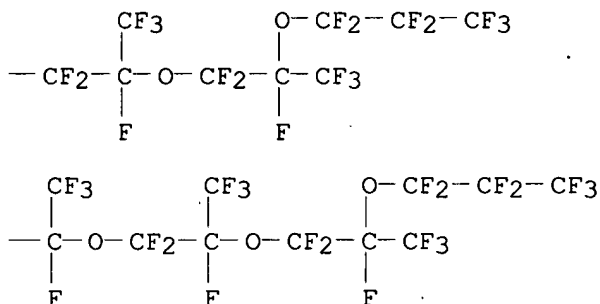
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RN 92179-91-4 HCAPLUS
 CN Phosphine, tris[3-[1,1,2,3,3,3-hexafluoro-2-[1,1,2,3,3,3-hexafluoro-2-
 [1,1,2,3,3,3-hexafluoro-2-(heptafluoropropoxy)propoxy]propoxy]propyl]pheny
 l]- (9CI) (CA INDEX NAME)

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PAGE 1-B



L46 ANSWER 10 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1979:523870 HCAPLUS

DN 91:123870

TI Fluorinated phosphinic acids

IN Gillman, Hyman D.; et al.

PA United States Dept. of the Air Force, USA

SO U. S. Pat. Appl., 18 pp. Avail. NTIS.

CODEN: XAXXAV

DT Patent

LA English

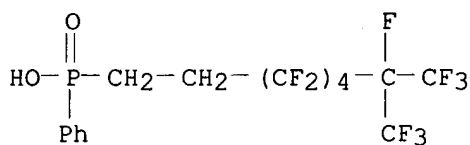
CC 29-7 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 51

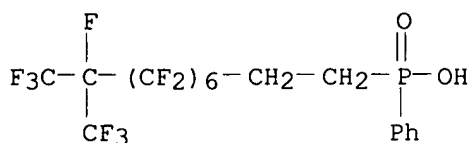
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4185031	A	19800122	US 1978-946265	19780927
	US 946265	A0	19790427		
AB	Addn. of RPH(O)(OH) to R1CH:CH2 in the presence of Me3CCO3CMe3 gave 4 R1CH2CH2P(O)(OH)R (R = H, Ph; R1 = (F3C)2CF(CF2)n, n = 4, 6), useful as grease thickeners for fluorinated high-temp. lubricants.				
ST	addn fluorinated olefin phosphinic; phosphinic acid fluorinated; lubricating grease additive; thickener lubricating grease ; high temp lubricant additive; lubricant fluorinated high temp				
IT	Lubricating grease additives (thickeners, for fluorinated high-temp. fluids, fluorinated phosphinic acids as)				
IT	18017-21-5	29457-38-3			

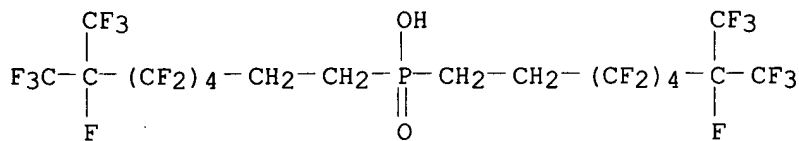
RL: RCT (Reactant)
 (addn. of phosphinic acid to)
 IT 1779-48-2 6303-21-5
 RL: RCT (Reactant)
 (addn. reaction of, with fluorinated olefins)
 IT 927-07-1
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts, for the addn. of phosphinic acid to fluorinated olefins)
 IT 71320-73-5P 71320-74-6P 71320-75-7P
 71320-76-8P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and lubricating grease additive activity)
 IT 71320-73-5P 71320-74-6P 71320-75-7P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and lubricating grease additive activity)
 RN 71320-73-5 HCAPLUS
 CN Phosphinic acid, [3,3,4,4,5,5,6,6,7,8,8,8-dodecafluoro-7-(trifluoromethyl)octyl]phenyl- (9CI) (CA INDEX NAME)



RN 71320-74-6 HCAPLUS
 CN Phosphinic acid, [3,3,4,4,5,5,6,6,7,7,8,8,9,10,10,10-hexadecafluoro-9-(trifluoromethyl)decyl]phenyl- (9CI) (CA INDEX NAME)



RN 71320-75-7 HCAPLUS
 CN Phosphinic acid, bis[3,3,4,4,5,5,6,6,7,8,8,8-dodecafluoro-7-(trifluoromethyl)octyl]- (9CI) (CA INDEX NAME)



L46 ANSWER 11 OF 15 HCAPLUS COPYRIGHT 2002 ACS
 AN 1976:560320 HCAPLUS
 DN 85:160320
 TI Perfluoroalkyl ether-substituted aryl phosphines and their synthesis
 IN Tamborski, Christ
 PA United States Dept. of the Air Force, USA
 SO U. S. Pat. Appl., 15 pp. Avail. NTIS.
 CODEN: XAXXAV

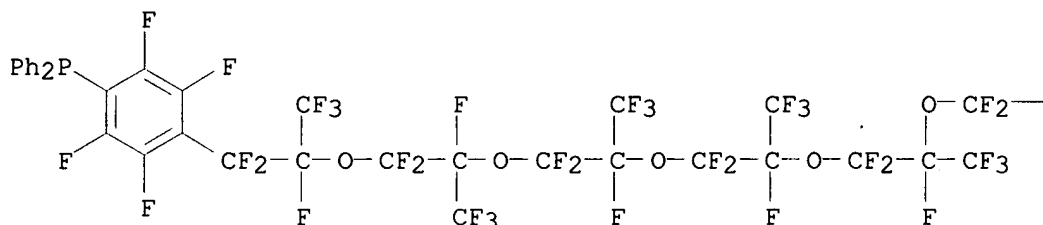
DT Patent
 LA English
 CC 29-7 (Organometallic and Organometalloidal Compounds)
 Section cross-reference(s): 51

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 629469	A0	19751106	US 1975-629469	19751106
	SE 423553	B	19820510	SE 1976-12165	19761102
	SE 423553	C	19820819		
	NL 188474	B	19920203	NL 1976-12135	19761102
	NL 188474	C	19920701		
	CA 1072121	A1	19800219	CA 1976-264801	19761103
	CH 606398	A	19781031	CH 1976-13996	19761105
	FR 2330690	B1	19781222	FR 1976-33406	19761105
	JP 59049237	B4	19841201	JP 1976-133082	19761105
	DE 2650722	C2	19860925	DE 1976-2650722	19761105
	GB 1551425	A	19790830	GB 1976-46342	19761108
PRAI	US 1975-629469		19751106		
	US 1976-681871		19760430		
AB	Grignard reaction of 0.1 mole 1,4-dibromotetrafluorobenzene with 0.1 mole F3C(CF2)2OCF(CF3)CF2OCF(CF3)COF gave 65.5% F3C(CF2)2OCF(CF3)CF2OCF(CF3)COC 6F4 p-BR, which was fluorinated to give 68% F3C(CF2)2OCF(CF3)CF2OCF(CF3)CF 2C6F4Br-p (I). The reaction of lithiated I with PCl3 gave 50% [p-F3C(CF2)2OCF(CF3)CF2OCF(CF3)CF2C6F4]3P (II). F3C(CF2)2O[CF(CF3)CF2O]4CF(CF3)CF2C6F4(PPh2)-p (III) was similarly prepd. II and III were useful as anticorrosion and antioxidn. additives for perfluorinated engine oils , hydraulic fluids, and greases .				
ST	perfluoro alkyl phenylphosphine ether; phosphine phenyl ether perfluoro alkyl; fluoro alkyl phenylphosphine ether; lubricant additive perfluoropolyalkoxyphenylphosphine; hydraulic fluid additive perfluoropolyalkoxyphenylphosphine; antioxidant lubricant perfluoropolyalkoxyphenylphosphine; corrosion inhibitor perfluoropolyalkoxyphenylphosphine				
IT	Hydraulic fluids Lubricants (additives, antioxidant and anticorrosive, perfluoro alkyl phenylphosphine ethers)				
IT	Lubricating grease additives Lubricating oil additives (antioxidant and corrosion inhibiting perfluoro alkyl phenylphosphine ethers)				
IT	2641-34-1 RL: RCT (Reactant) (Grignard reaction with dibromotetrafluorobenzenes)				
IT	344-03-6 RL: RCT (Reactant) (Grignard reaction with perfluoroacyl fluorides)				
IT	60799-25-9P 60950-97-2P RL: SPN (Synthetic preparation); PREP (Preparation) (prepn. and anticorrosive properties of)				
IT	60799-26-0P RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation) (prepn. and fluorination of)				
IT	60799-28-2P RL: SPN (Synthetic preparation); PREP (Preparation) (prepn. of)				
IT	60799-27-1P RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)				

(prepn., lithiation, and reaction with phosphorus trichloride)
 IT 1079-66-9 7719-12-2
 RL: RCT (Reactant)
 (reaction with lithiated bromoperfluorophenylalkyl ethers)
 IT 60799-25-9P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and anticorrosive properties of)
 RN 60799-25-9 HCAPLUS
 CN Phosphine, [4-[1,1,2,4,4,5,7,7,8,10,10,11,13,13,14,16,16,17,17,18,18,18-docosafuoro-2,5,8,11,14-pentakis(trifluoromethyl)-3,6,9,12,15-pentaoxaoctadec-1-yl]-2,3,5,6-tetrafluorophenyl]diphenyl- (9CI) (CA INDEX NAME)

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PAGE 1-B

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L46. ANSWER 12 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1976:4581 HCAPLUS

DN 84:4581

TI Synthesis of partially fluorinated phosphoric diaryl esters and dialkyl esters and their potential application as **additives** and/or base **oils**

AU Lindinger, H.; Fanghaenel, L.

CS Inst. Flugtreib-Schmierst., Dtsch. Forsch.- und Versuchsanst. Luft- und Raumfahrt e.V., Munich, Ger.

SO Dtsch. Luft- Raumfahrt, Forschungsber. (1974), DLR-FB 74-69, 35 pp.
 CODEN: DLRFA8

DT Report

LA German

CC 25-10 (Noncondensed Aromatic Compounds)

Section cross-reference(s): 26, 51

AB POCl₃ reacted with ROH, and R₁OH, to give 8 (RO)(R₁O)PClO (I; R = Ph, R₁ = 3-MeOC₆H₄; R = Ph, 2-, 3- or 4-MeOC₆H₄, 2-ClC₆H₄, 4,2-MeClC₆H₃, or 1-naphthyl, R₁ = 3-F₃CC₆H₄), or it reacted with 2 moles phenol to give I (R = R₁ = Ph, 2-ClC₆H₄, 2- or 4-MeC₆H₄, or 2,4-MeClC₆H₃). I then reacted with R₂OH to give 18 (RO)(R₁O)(R₂O)PO (II; R and R₁ same as in I, R₂ = CF₃CH₂, n-C₃F₇CH₂, or H(CF₂)_nCH₂, where n = 6, 8, or 10). II were evaluated as lubricants and as lubricant additives (to BuCH₂EtCH₂O₂C(CH₂)₈CO₂CH₂CH₂EtBu).

ST phosphate fluoroalkyl diaryl lubricant; **oil additive**

diaryl fluoroalkyl phosphate; phenyl fluoroalkyl phosphate lubricant;
naphthyl fluorononyl fluorotolyl phosphate

IT Lubricants

Lubricating oil additives

(diaryl polyfluoroalkyl phosphates)

IT 122-62-3

RL: RCT (Reactant)

(lubricants from diaryl polyfluoroalkyl phosphates and)

IT 20464-86-2P 57471-35-9P 57471-36-0P 57471-37-1P 57471-38-2P

57471-40-6P 57471-41-7P 57471-43-9P 57471-45-1P

57471-46-2P 57471-47-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP

(Preparation)

(prepn. and reaction with polyfluoroalkanol)

IT 429-79-8P 57471-39-3P 57471-42-8P 57471-44-0P

57471-48-4P 57471-49-5P 57471-50-8P

57471-51-9P 57471-52-0P 57471-53-1P

57471-54-2P 57471-55-3P 57471-56-4P

57471-57-5P 57471-58-6P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of)

IT 75-89-8 307-70-0 335-99-9 375-01-9 376-18-1

RL: RCT (Reactant)

(reaction of, with diaryl phosphorochloridates)

IT 10025-87-3

RL: RCT (Reactant)

(reaction of, with phenols and polyfluoroalkanols)

IT 90-05-1

RL: RCT (Reactant)

(reaction of, with phosphorus oxychloride, other phenols and)

IT 150-19-6 150-76-5

RL: RCT (Reactant)

(reaction of, with phosphorus oxychloride, other phenols and
polyfluoroalkanols)

IT 90-15-3 95-48-7 95-57-8 98-17-9 106-44-5 1570-64-5 6640-27-3

RL: RCT (Reactant)

(reaction of, with phosphorus oxychloride, phenols and
polyfluoroalkanols)

IT 108-95-2, reactions

RL: RCT (Reactant)

(with phosphorus oxychloride, other phenols and polyfluoroalkanols)

IT 57471-43-9P 57471-45-1P 57471-46-2P

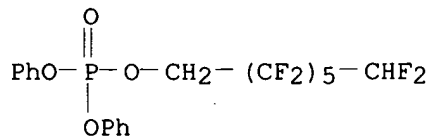
RL: RCT (Reactant); SPN (Synthetic preparation); PREP

(Preparation)

(prepn. and reaction with polyfluoroalkanol)

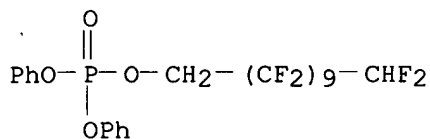
RN 57471-43-9 HCAPLUS

CN Phosphoric acid, 2,2,3,3,4,4,5,5,6,6,7,7-dodecafluoroheptyl diphenyl ester
(9CI) (CA INDEX NAME)



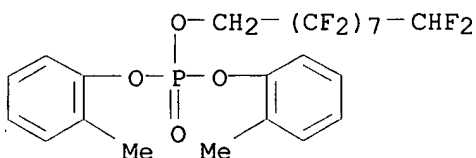
RN 57471-45-1 HCAPLUS

CN Phosphoric acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11-
eicosafuoroundecyl diphenyl ester (9CI) (CA INDEX NAME)



RN 57471-46-2 HCAPLUS

CN Phosphoric acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl bis(2-methylphenyl) ester (9CI) (CA INDEX NAME)



IT 429-79-8P 57471-44-0P 57471-48-4P

57471-49-5P 57471-50-8P 57471-51-9P

57471-52-0P 57471-53-1P 57471-54-2P

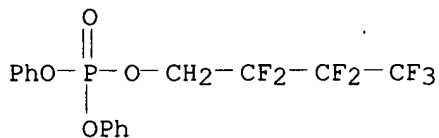
57471-55-3P 57471-56-4P 57471-57-5P

57471-58-6P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

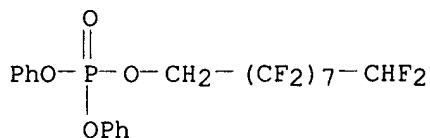
RN 429-79-8 HCAPLUS

CN Phosphoric acid, 2,2,3,3,4,4,4-heptafluorobutyl diphenyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



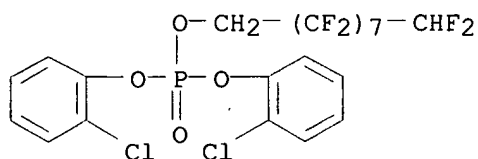
RN 57471-44-0 HCAPLUS

CN Phosphoric acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl diphenyl ester (9CI) (CA INDEX NAME)



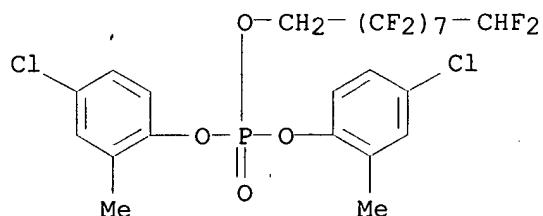
RN 57471-48-4 HCAPLUS

CN Phosphoric acid, bis(2-chlorophenyl) 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl ester (9CI) (CA INDEX NAME)



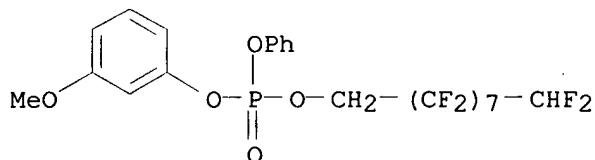
RN 57471-49-5 HCAPLUS

CN Phosphoric acid, bis(4-chloro-2-methylphenyl)
2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl ester (9CI) (CA INDEX NAME)



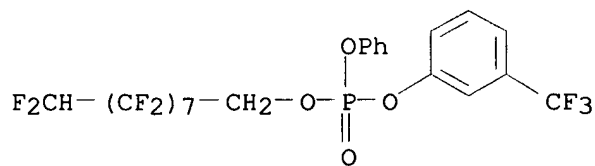
RN 57471-50-8 HCAPLUS

CN Phosphoric acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl
3-methoxyphenyl phenyl ester (9CI) (CA INDEX NAME)



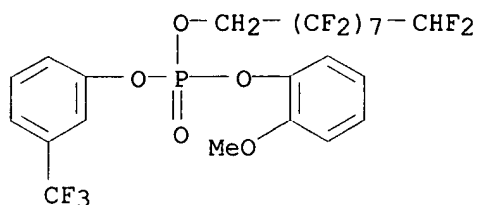
RN 57471-51-9 HCAPLUS

CN Phosphoric acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl
phenyl 3-(trifluoromethyl)phenyl ester (9CI) (CA INDEX NAME)



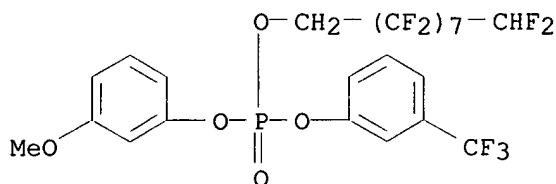
RN 57471-52-0 HCAPLUS

CN Phosphoric acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl
2-methoxyphenyl 3-(trifluoromethyl)phenyl ester (9CI) (CA INDEX NAME)



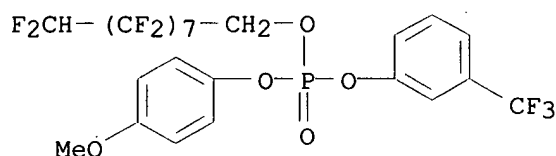
RN 57471-53-1 HCAPLUS

CN Phosphoric acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl 3-methoxyphenyl 3-(trifluoromethyl)phenyl ester (9CI) (CA INDEX NAME)



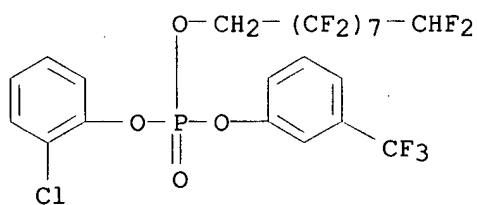
RN 57471-54-2 HCAPLUS

CN Phosphoric acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl 4-methoxyphenyl 3-(trifluoromethyl)phenyl ester (9CI) (CA INDEX NAME)



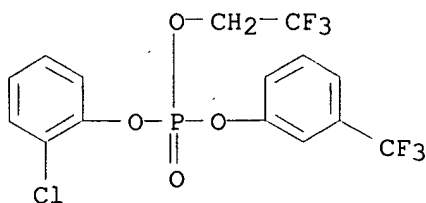
RN 57471-55-3 HCAPLUS

CN Phosphoric acid, 2-chlorophenyl 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl 3-(trifluoromethyl)phenyl ester (9CI) (CA INDEX NAME)



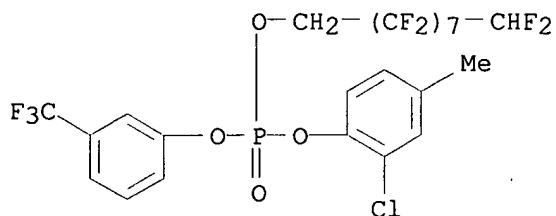
RN 57471-56-4 HCAPLUS

CN Phosphoric acid, 2-chlorophenyl 2,2,2-trifluoroethyl 3-(trifluoromethyl)phenyl ester (9CI) (CA INDEX NAME)



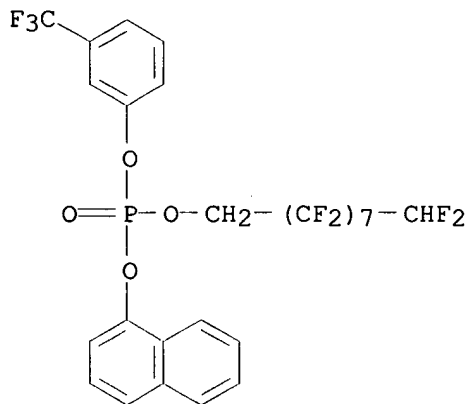
RN 57471-57-5 HCAPLUS

CN Phosphoric acid, 2-chloro-4-methylphenyl 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl 3-(trifluoromethyl)phenyl ester (9CI) (CA INDEX NAME)



RN 57471-58-6 HCAPLUS

CN Phosphoric acid, 2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9-hexadecafluorononyl 1-naphthalenyl 3-(trifluoromethyl)phenyl ester (9CI) (CA INDEX NAME)



L46 ANSWER 13 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1973:43689 HCAPLUS

DN 78:43689

TI Bis(triorganosilyl) phosphates as corrosion inhibitors for fluorosilicon lubricants

IN Groenhof, E. D.

PA Dow Corning Corp.

SO U.S., 2 pp. Division of U.S. 3,639,239 (CA 76;88273u).

CODEN: USXXAM

DT Patent

LA English

IC C07F

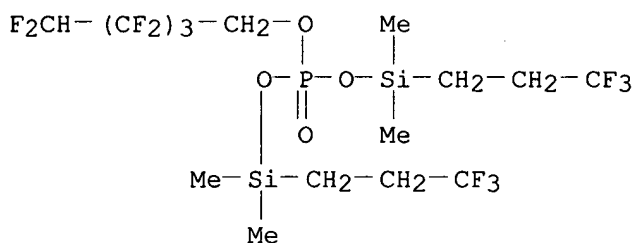
NCL 260488200N

CC 29-6 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 51

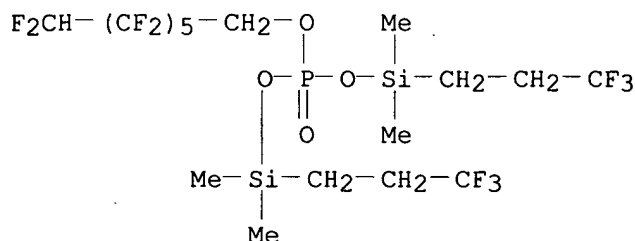
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3694479	A	19720926	US 1971-129181	19710329
AB	A mixt. of H(CF ₂) ₄ CH ₂ OP(O)(OH) ₂ and H(CF ₂) ₆ CH ₂ OP(O)(OH) ₂ was treated with [F ₃ CCH ₂ CH ₂ SiMe ₂] ₂ NH to give H(CF ₂) ₄₋₆ CH ₂ OP(O)(OSiMe ₂ CH ₂ CH ₂ CF ₃) ₂ which passed ASTM tests as a rust inhibitor in lubricants.				
ST	corrosion inhibitor fluoroalkylsilyl phosphate; lubricant additive fluoroalkylsilyl phosphate; fluoroalkylsilyl phosphate; silyl fluoroalkyl phosphate; silicon org compd				
IT	Lubricating oil additives (corrosion inhibitors, fluoroorganosilyl phosphates as, for fluorosilicones)				
IT	Corrosion prevention (fluoroorganosilyl phosphates as lubricant additives for)				
IT	35978-88-2P 35978-89-3P RL: SPN (Synthetic preparation); PREP (Preparation) (prepn. of)				
IT	39482-87-6 RL: RCT (Reactant) (reaction with fluoroalkyl phosphates)				
IT	424-22-6 39482-86-5 RL: RCT (Reactant) (reaction with silylamines)				
IT	35978-88-2P 35978-89-3P RL: SPN (Synthetic preparation); PREP (Preparation) (prepn. of)				
RN	35978-88-2 HCAPLUS				
CN	Phosphoric acid, bis[dimethyl(3,3,3-trifluoropropyl)silyl] 2,2,3,3,4,4,5,5,6,6,7,7-dodecafluoropentyl ester (9CI) (CA INDEX NAME)				



RN 35978-89-3 HCAPLUS

CN Phosphoric acid, bis[dimethyl(3,3,3-trifluoropropyl)silyl]
2,2,3,3,4,4,5,5,6,6,7,7-dodecafluoroheptyl ester (9CI) (CA INDEX NAME)



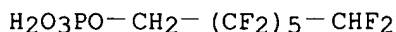
IT 424-22-6 39482-86-5

RL: RCT (Reactant)

(reaction with silylamines)

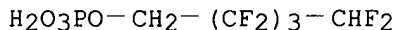
RN 424-22-6 HCAPLUS

CN 1-Heptanol, 2,2,3,3,4,4,5,5,6,6,7,7-dodecafluoro-, dihydrogen phosphate (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 39482-86-5 HCAPLUS

CN 1-Pentanol, 2,2,3,3,4,4,5,5-octafluoro-, dihydrogen phosphate (9CI) (CA INDEX NAME)



L46 ANSWER 14 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1971:143552 HCAPLUS

DN 74:143552

TI (Perfluorocyclohexyl)methyl phosphates for oilproofing paper

IN Moyer, Ronald C.

PA Air Products and Chemicals Inc.

SO Ger. Offen., 21 pp.

CODEN: GWXXBX

DT Patent

LA German

IC C07F; D21H; D06M

CC 43 (Cellulose, Lignin, Paper, and Other Wood Products)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 2036179	A	19710218	DE 1970-2036179	19700721
	GB 1297085	A	19721122	GB 1970-1297085	19700717
	NL 7010946	A	19710126	NL 1970-10946	19700723
	FR 2055551	A5	19710507	FR 1970-27274	19700723
	US 3812217	A	19740521	US 1972-236978	19720322
PRAI	US 1969-844197		19690723		
	US 1970-39175		19700520		

GI For diagram(s), see printed CA Issue.

AB The title compds. [I where R = F, CF₃, or (CF₂)₃CF₃ and n = 1 or 2] were prepd. in high yield by reaction of II with POCl₃ via the corresponding chlorides at 100.degree. or with P₂O₅ at 55.degree.. Thus, heating a 3:1 molar II (R = CF₃)-P₂O₅ mixt. 6 hr at 55.degree. gave 96% I (R = CF₃, n = 2). Consolite paper impregnated with 0.7% of this compd. withstood the

action of peanut oil for 72 hr in a **grease** penetration test. I had similar effects on cotton.

ST oleophobic fluorocyclohexylmethyl phosphates; oil proofing phosphates papers; **greaseproofing** cotton phosphates

IT Oils

RL: USES (Uses)

(-proofing, of paper, with (perfluorocyclohexyl)methyl phosphate)

IT Paper

(oil-proofing of, with (perfluorocyclohexyl)methyl phosphate)

IT Corn oil

Fats

Peanut oil

RL: USES (Uses)

(penetration of, in paper impregnated with (perfluorocyclohexyl)methyl phosphate)

IT 32582-74-4 32582-75-5 32582-76-6

32582-77-7 32694-93-2 33450-99-6

RL: USES (Uses)

(oil-proofing with, of paper)

IT 8012-95-1

RL: USES (Uses)

(penetration of, in paper impregnated with (perfluorocyclohexyl)methyl phosphate)

IT 32694-92-1P 32831-71-3P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of)

IT 32582-74-4 32582-75-5 32582-76-6

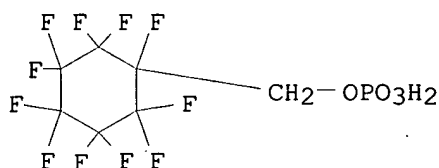
32582-77-7 32694-93-2 33450-99-6

RL: USES (Uses)

(oil-proofing with, of paper)

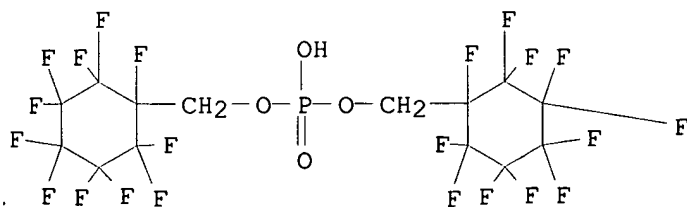
RN 32582-74-4 HCAPLUS

CN Cyclohexanemethanol, 1,2,2,3,3,4,4,5,5,6,6-undecafluoro-, dihydrogen phosphate (8CI) (CA INDEX NAME)



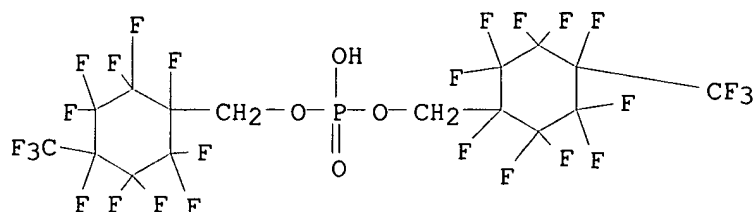
RN 32582-75-5 HCAPLUS

CN Cyclohexanemethanol, 1,2,2,3,3,4,4,5,5,6,6-undecafluoro-, hydrogen phosphate (8CI) (CA INDEX NAME)



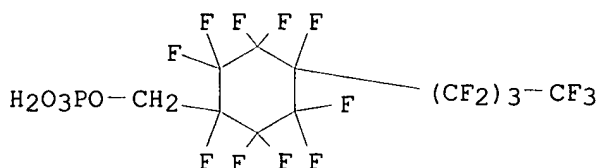
RN 32582-76-6 HCAPLUS

CN Cyclohexanemethanol, 1,2,2,3,3,4,5,5,6,6-decafluoro-4-(trifluoromethyl)-, hydrogen phosphate (8CI) (CA INDEX NAME)



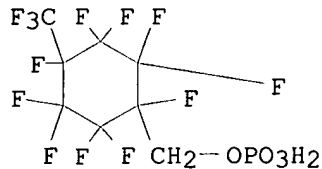
RN 32582-77-7 HCAPLUS

CN Cyclohexanemethanol, 1,2,2,3,3,4,5,5,6,6-decafluoro-4-(nonafluorobutyl)-, dihydrogen phosphate (8CI) (CA INDEX NAME)



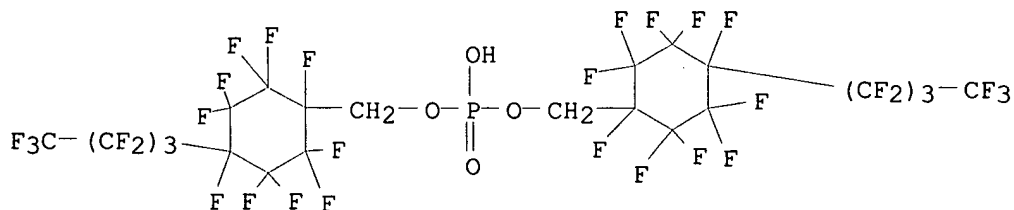
RN 32694-93-2 HCAPLUS

CN Cyclohexanemethanol, 1,2,2,3,3,4,5,5,6,6-decafluoro-4-(trifluoromethyl)-, dihydrogen phosphate (8CI) (CA INDEX NAME)



RN 33450-99-6 HCAPLUS

CN Cyclohexanemethanol, 1,2,2,3,3,4,5,5,6,6-decafluoro-4-(nonafluorobutyl)-, hydrogen phosphate (8CI) (CA INDEX NAME)

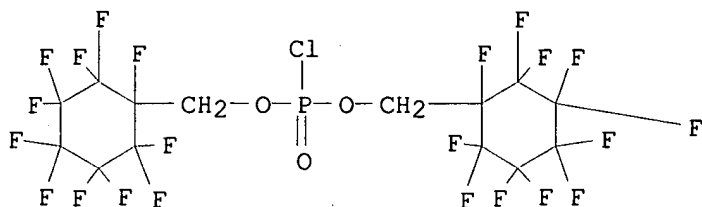


IT 32694-92-1P 32831-71-3P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

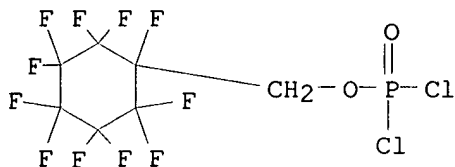
RN 32694-92-1 HCAPLUS

CN Phosphorochloridic acid, bis[(1,2,2,3,3,4,4,5,5,6,6-undecafluorocyclohexyl)methyl] ester (8CI) (CA INDEX NAME)



RN 32831-71-3 HCAPLUS

CN Phosphorodichloridic acid, (1,2,2,3,3,4,4,5,5,6,6-undecafluorocyclohexyl)methyl ester (8CI) (CA INDEX NAME)



L46 ANSWER 15 OF 15 HCAPLUS COPYRIGHT 2002 ACS

AN 1968:410231 HCAPLUS

DN 69:10231

TI Bis(perfluoromethylphenyl) cyanoethyl and bis(cyanoethyl) perfluoromethylphenyl phosphates

IN Blake, Edward S.; DeBrunner, Ralph E.; Webster, James A.

PA Monsanto Research Corp.

SO U.S., 4 pp.

CODEN: USXXAM

DT Patent

LA English

NCL 260940000

CC 25 (Noncondensed Aromatic Compounds)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3359349		19671219	US	19641009

GI For diagram(s), see printed CA Issue.

AB The title compds. of general formula I where m and n are 1 or 2, m + n is 3, may be prepd. by reacting phosphorohalidates or dihalidates of general formula Ia with alkylene cyanohydrins at 0-150.degree., and preferably in the presence of a basic inorg. or org. catalyst. I are generally stable, clear high-boiling liquids having kinematic viscosities well below 5000 centistokes at 25.degree.F., high flash and ignition points, and are liquid over wide temp. ranges. Thus, a mixt. contg. 180 g. crude m-trifluoromethylphenyl phosphorodichloridate (b17 <185.degree.C., and obtained by refluxing phosphoryl chloride with m-trifluoromethylphenol and distg. the product), 539 g. phosphoryl chloride, and 1000 g. m-trifluoromethylphenol is refluxed within 20 hrs. (after which the temp. is 230.degree.C.), and the mixt. distd. to give 389.5 g. substantially pure m-trifluoromethylphenyl phosphorodichloridate (II), b20 125-30.degree.C., and 814.2 g. bis(m-trifluoromethylphenyl) phosphorochloridate (III), b20 195.degree.C. To a mixt. of 17.8 g. hydracrylonitrile (IV) in 22.9 g. pyridine is added dropwise over 75 min., 101.1 g. III, the whole stirred 2 hrs. at 65-75.degree.C., allowed to cool to room temp., and worked up, and the product distd. to remove material

boiling up to 110.degree.C./0.25 mm. and give 79.4% substantially pure bis(m-perfluoromethylphenyl) 2-cyanoethyl phosphate, n25D 1.4705, having the following properties: pour point -10.degree.F., kinematic viscosities (4291, 74.27 and 6.49 centistokes at 25, 100, and 210.degree.F., resp.), autogenous ignition temp. 1150.degree.F. (for 0.04 ml. with lag of 4 sec.), and does not burn without applying a spark. Similarly prepd. from II and IV is substantially pure bis(2-cyanoethyl) m-perfluoromethylphenyl phosphate, n25D 1.4640, pour point -15.degree.F., kinematic viscosities (3367, 76.01, and 7.1 centistokes at 25, 100, and 210.degree.F., resp.), autogenous ignition temp. 1160.degree.F. (for 0.04 ml. with lag of 2 sec.), which does not affect a painted steel surface. I are very useful as hydraulic fluids, especially in systems which are subjected to widely varying temp. conditions, and may also be employed as heat-exchange media, gyro fluids, and lubricants.

- ST cyano ethyl phosphates; fluoro methyl phenyl phosphates;
lubricating phosphates; ethyl phosphates cyano; methyl phenyl
 phosphates fluoro; phosphates fluoro methyl phenyl; phenyl phosphates
 fluoro methyl
- IT Hydraulic fluids
 (2-cyanoethyl .alpha.,.alpha.,.alpha.-trifluoro-m-tolyl phosphates as)
- IT 6780-89-8P 6780-90-1P 18870-06-9P 18870-07-0P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)
- IT 6780-89-8P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn. of)
- RN 6780-89-8 HCAPLUS
- CN Phosphorochloridic acid, bis(.alpha.,.alpha.,.alpha.-trifluoro-m-tolyl)
 ester (8CI) (CA INDEX NAME)

